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UNITED STATES COMMISSION OF FISH AND FISHERIES
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THE FISHERIES
AND
FISHERY INDUSTRIES
OF THE
UNITED STATES

PREPARED THROUGH THE CO-OPERATION OF THE COMMISSIONER OF FISHERIES
AND THE SUPERINTENDENT OF THE TENTH CENSUS

BY

GEORGE BROWN GOODE
ASSISTANT SECRETARY OF THE SMITHSONIAN INSTITUTION
AND A STAFF OF ASSOCIATES

SECTION V
HISTORY AND METHODS OF THE FISHERIES
IN TWO VOLUMES, WITH AN ATLAS OF TWO HUNDRED AND FIFTY-FIVE PLATES

PLATES

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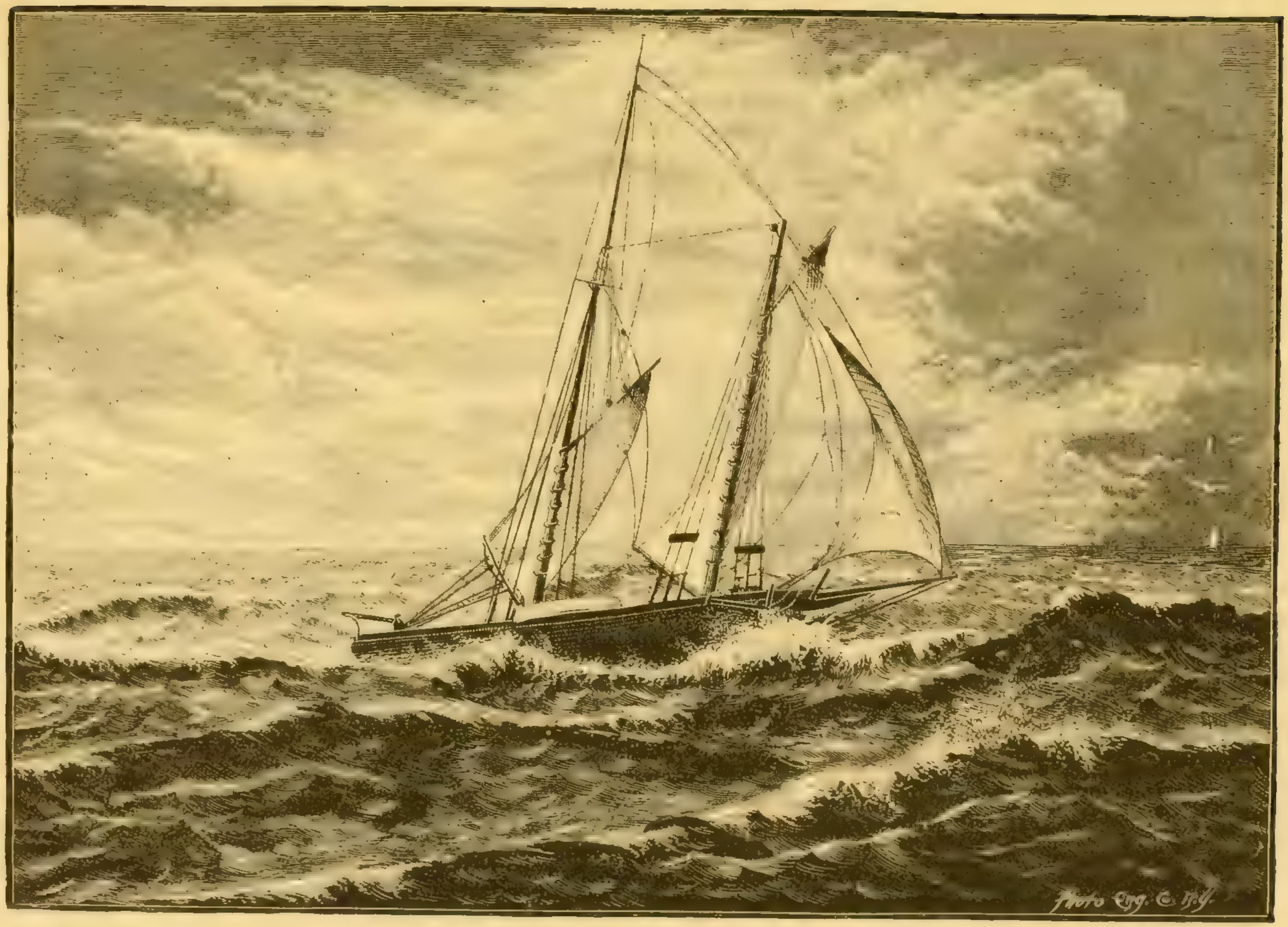
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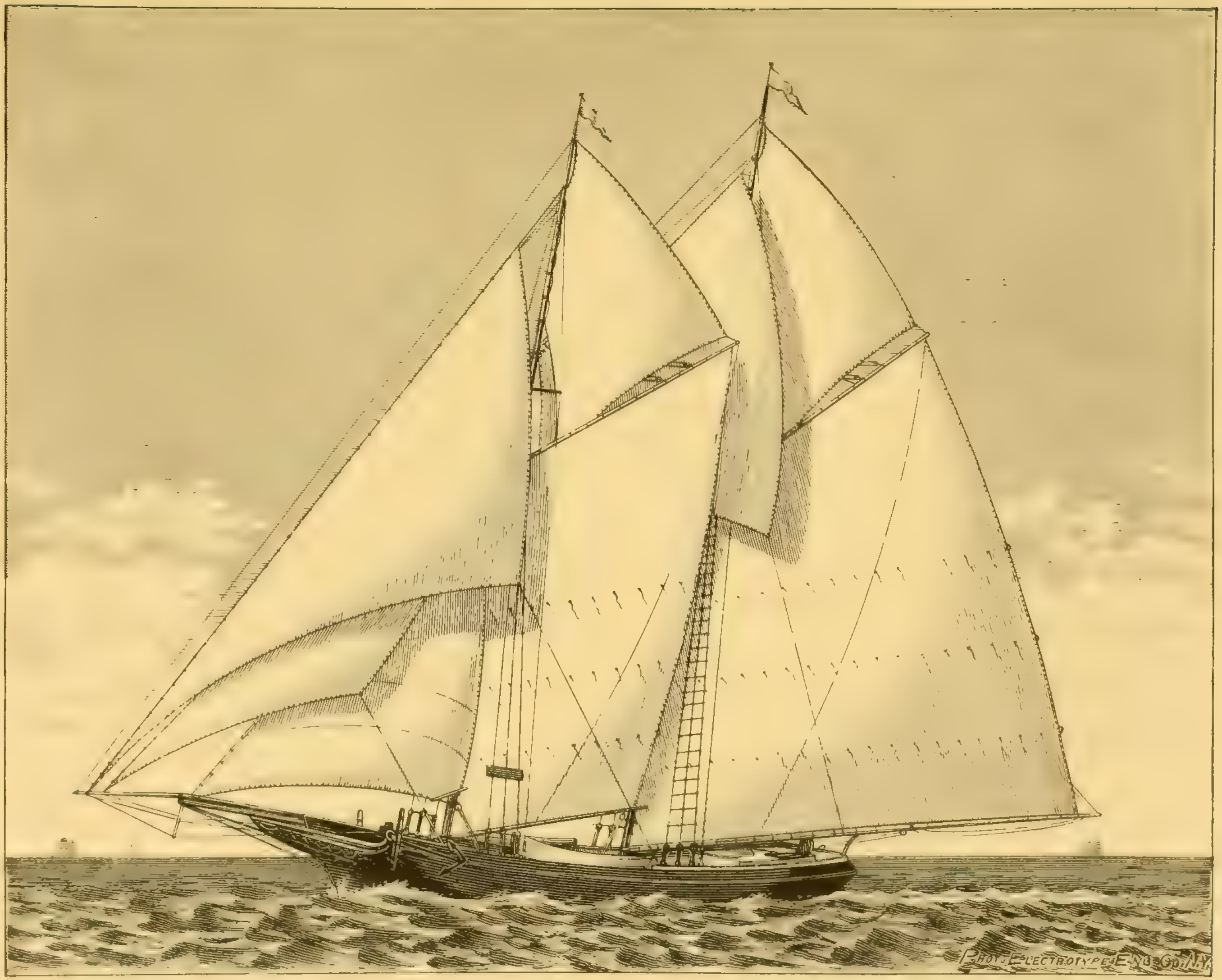
THE FRESH HALIBUT FISHERY.

Halibut schooner under jib, foresail, and double-reefed mainsail. Nests of dories lashed on deck amidships. Rigged for fall and winter fishing. (Sect. v, vol. 1, p. 7.)

Drawing by Capt. J. W. Collins.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THE FRESH HALIBUT FISHERY.

Halibut schooner in summer rig: Two top-masts up and all sails set. In winter the foretop-mast and jib-boom are not carried.
(Sect. v, vol. i, p. 7.)

Drawing by Capt. J. W. Collins.

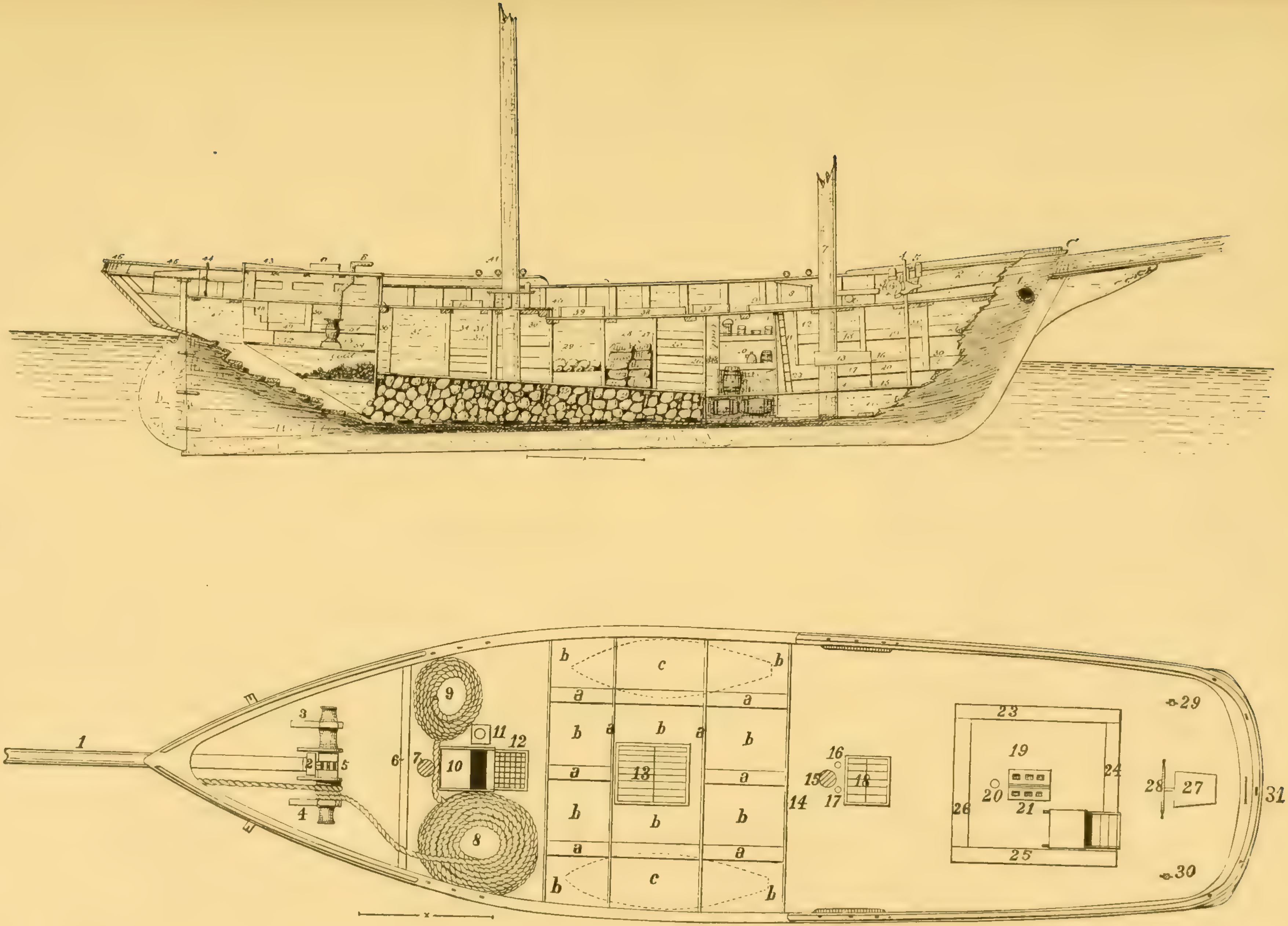
Plate 3.

SECTIONAL DRAWING OF HALIBUT SCHOONER, SHOWING PORT SIDE OF VESSEL.

FIG. 1.—1, Hawse-hole; C, knight-heads. 2, Inside part or "heel" of bowsprit. 3, End view of the middle part of the windlass, between the patent and windlass-bit on starboard side, showing position of the whelps on windlass. 4, Pawl-bit. 5, Position of the windlass beam. 6, Position of jib-sheet traveler. 7, Foremast. 8, Forward companion-way. 9, Fore-hatch, for hoisting in and out water and provision barrels; in moderate weather it is covered with a grating and serves the purpose of ventilating the forehold and forecastle. 10, The forehold, where the stores and water are kept; the water (28 to 30 barrels) is stowed in different ways to suit the ideas of the cook or skipper, but generally on the starboard side—oftentimes two large casks are carried amidships—and a pantry is built on the port side, where the "heavy stores" (flour, beef, &c.) are stowed on the head, that is, such as are open and being used, while the "small stores" (butter, lard, sugar, &c.) are kept in firkins, half-barrels, &c., and secured from being upset by setting in places built for them as shown in the drawing. A coal-pen is built between the pantry and forward bulkhead to the ice-house. The coal-pen is sometimes built on the starboard side next to the forecastle bulkhead. 11, Forecastle steps. 12, Cupboard, from deck to locker; there is another of the same size on the starboard side, just forward of the foremast. 13, After section of the table with the leaf turned up; this also turns back against the mast, the leaves folding alongside of the mast. 14, Locker on port side. 15, Forecastle floor. 16, Forward section of table; this is stationary, the forward end fastening to the pawl-bit, and the after end supported by an upright standard. 17, 18, 19, 20, 21, and 22, Positions of the upper and lower berths on port side; No. 22, being in the fore-peak, is small, and is not used for sleeping purposes, but is utilized for the storage of lanterns, kerosene-cans, &c.; there are only two rows of sleeping bunks on the starboard side; the berths abreast of the after row are used by the cook as lockers for his cooking utensils, &c. 23, Position of cook-stove (always carried on starboard side). 24, Pawl-bit, under deck. 25, Forward pen in the ice-house, with pen-boards up, or shipped in place. 26, Forward bulkhead to ice-house, built of double boards, with tarred paper between, from side to side of vessel. 27, Stanchion and partition between the forward and second pen. 28, Second pen, showing how the ice is stowed. 29, Shows how halibut are iced in a pen, always white side up, and lying upon each other, so that they are slanting instead of flat in the pen; one-half of the tier is stowed head towards the side of the vessel, and the other half out, as shown in the drawing, both forming what is called a tier. 30, After pen in forward ice-house. 31, Bulkhead between the forward and after ice-house, built same as the forward one. 32, Pumps. 33, Ballast under the plank floor of the ice-house; this plank floor is laid on sleepers, which extend from side to side of the hold; these sleepers are, or ought to be, supported by stanchions under them. 34, Forward pen in after ice-house. 35, After pen. 36, Salt-pen; this pen is larger than this in some vessels. 37, Checker-plank. 38, Main hatch. 39, Checker-plank. 40, Break of the quarter-deck. 41, Mainmast. 42, After-hatch; (*a*) skylight on top of house; (B) stovepipe. 43, After, or cabin, companion-way. 44, Wheel. 45, Wheel-box. 46, Taffrail. 47, Vacant place aft of cabin, under deck; used for the storage of gear, rope, &c. 48, Cabin stairs, called "steps" by fishermen. 49, After berth. 50, Partition between the berths. 51, Forward berth. 52, Locker, or seat, going around the cabin. 53, Stove. 54, Position of trap-door in the cabin floor, by which the coal is reached.

DECK PLAN OF HALIBUT SCHOONER.

Fig. 2.—1, Bowsprit. 2, Pawl-bit. 3, Starboard windlass-bit. 4, Port windlass-bit. 5, Windlass. 6, Jib-sheet traveler. 7, Foremast. 8, Port cable tier. 9, Starboard cable tier. 10, Forecastle companion slide. 11, Stovepipe funnel. 12, Forehatch, showing grating. 13, Main hatch. 14, "Break" of quarter deck, or grub beam. 15, Mainmast. 16, Starboard pump. 17, Port pump. 18, After hatch. 19, Trunk, or cabin house. 20, Stove funnel. 21, Skylight. 22, Companion slide. 23, 24, 25, 26, Bait planks around top of house. 27, Wheel box. 28, Wheel. 29, 30, Bit heads, for belaying main sheet, &c., to. 31, Taffrail. a, a, a, a; a, a, &c., Checker planks. b, b, &c., checkers. *c*, *c*, dotted lines showing position of dories when on deck.



THE FRESH HALIBUT FISHERY.

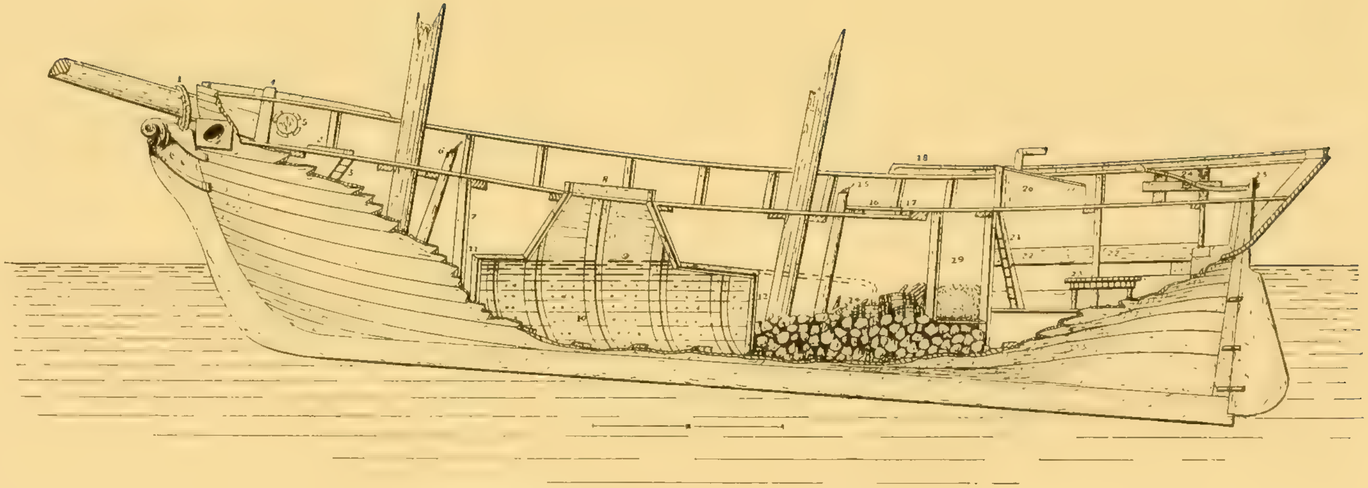
Sectional plan and deck plan of halibut schooner. (Sect. v, vol. i, pp. 7-9.)

Drawings by Capt. J. W. Collins

Plate 4.

GEORGE'S WELL SMACK—1836 TO 1847.

1, Gammon lashing. 2, Small hatch for entrance to forecastle. 3, Steps. 4, Pall-bit. 5, Windlass. 6, Forward pump. 7, Forecastle bulkhead. 8, Main hatch or entrance to well. 9, Water line in well. 10, Well-room. The dotted lines show that the well was sometimes made larger, extending aft of the mainmast, but as it was considered dangerous to have the mast rest on the well-deck, few adopted this plan. 11, Forward bulkhead of well. 12, After bulkhead of well. 14, After hold. 15, After pump. 16, After hatch. 17, Break of the quarter-deck. 18, Quarter rail. 19, Salt pen. 20, Cabin companion-way. 21, Steps. 22, Berths. 23, Table. 24, Tiller. 25, Rudder head.



THE FRESH HALIBUT FISHERY.

Sectional plan of well-smack employed in fresh halibut fishery on George's Bank, 1836 to 1847. (Sect. v, vol. i, p. 41.)

Drawing by Capt. J. W. Collins.

PLATE 5.

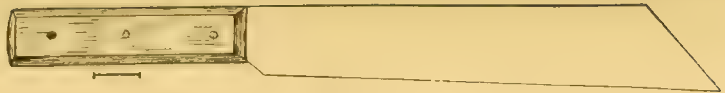
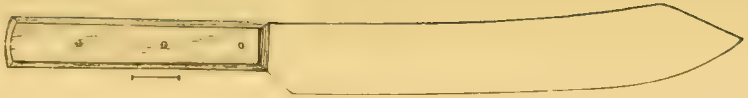


Fig. 1.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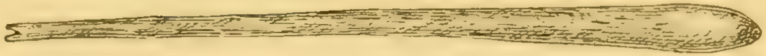
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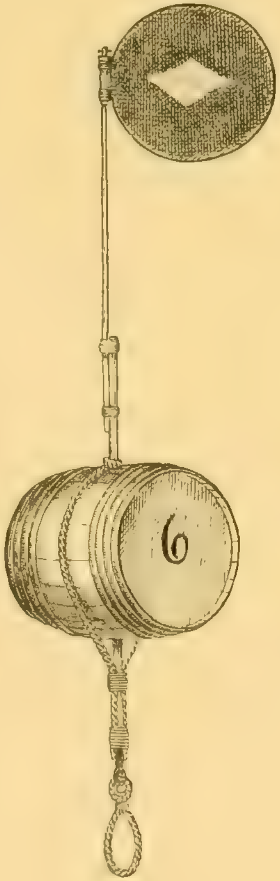
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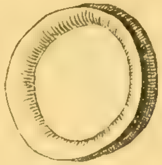
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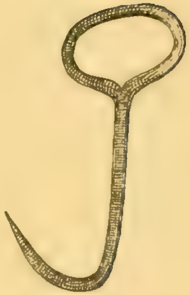
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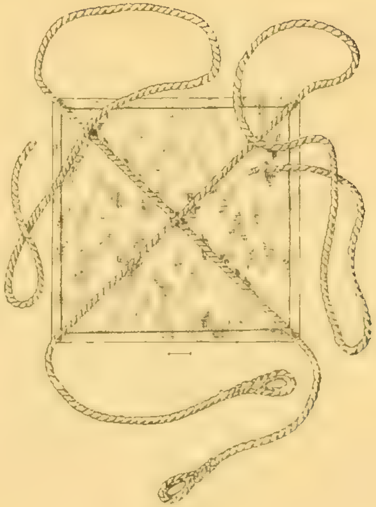
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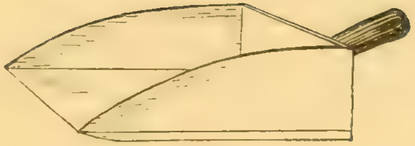


Fig. 8.

THE FRESH HALIBUT FISHERY.

Fig. 1. Bait-chopper. (Sect. v, vol. i, p. 12.)
Fig. 2. Bait-slivering knife. (Sect. v, vol. i, p. 12.)
Fig. 3. Halibut-killer and gob-stick. (Sect. v, vol. i, p. 17.)
Fig. 4. Woolen hand-nipper. (Sect. v, vol. i, pp. 10, 94.)
Fig. 5. Halibut-gaff. (Sect. v, vol. i, p. 17.)
Fig. 6. Trawl buoy and black ball. (Sect. v, vol. i, p. 11.)
Fig. 7. Canvas skate for trawl. (Sect. v, vol. i, p. 11.)
Fig. 8. Dory scoop. (Sect. v, vol. i, p. 10.)

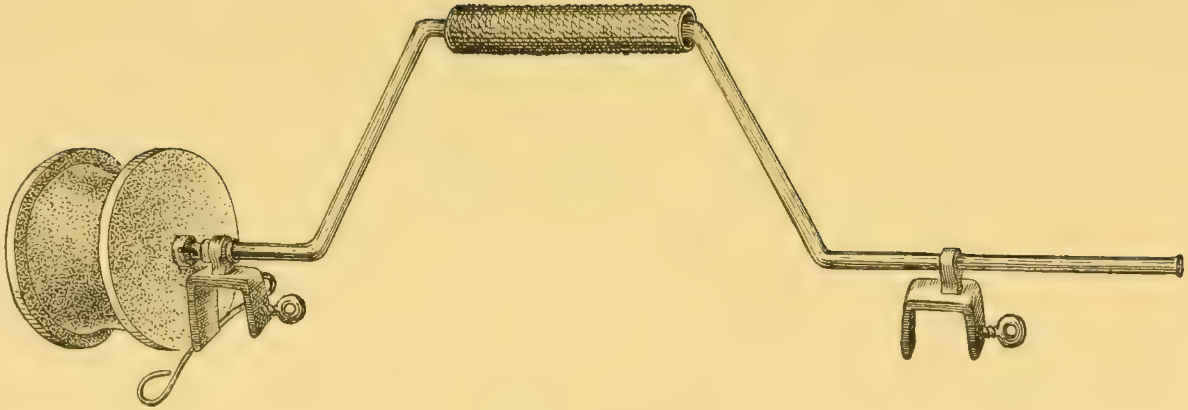


Fig. 1.

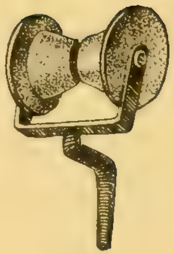


Fig. 3.

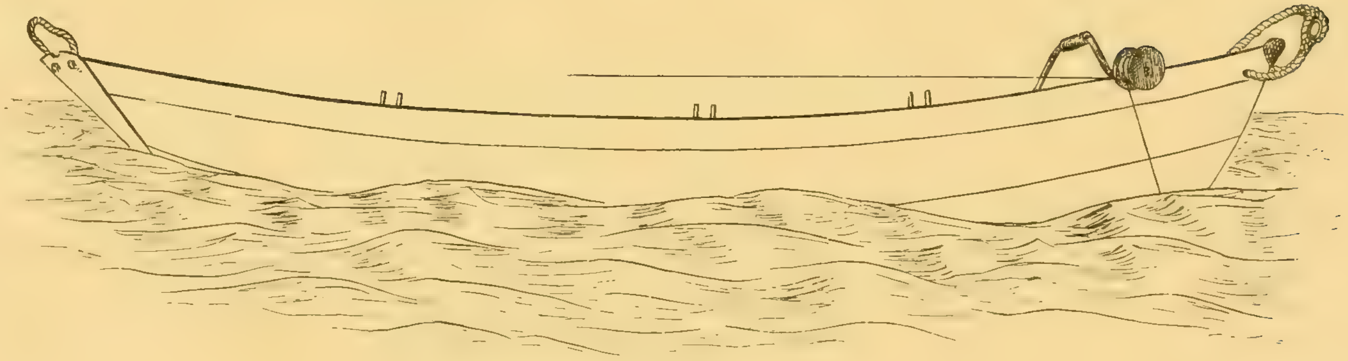
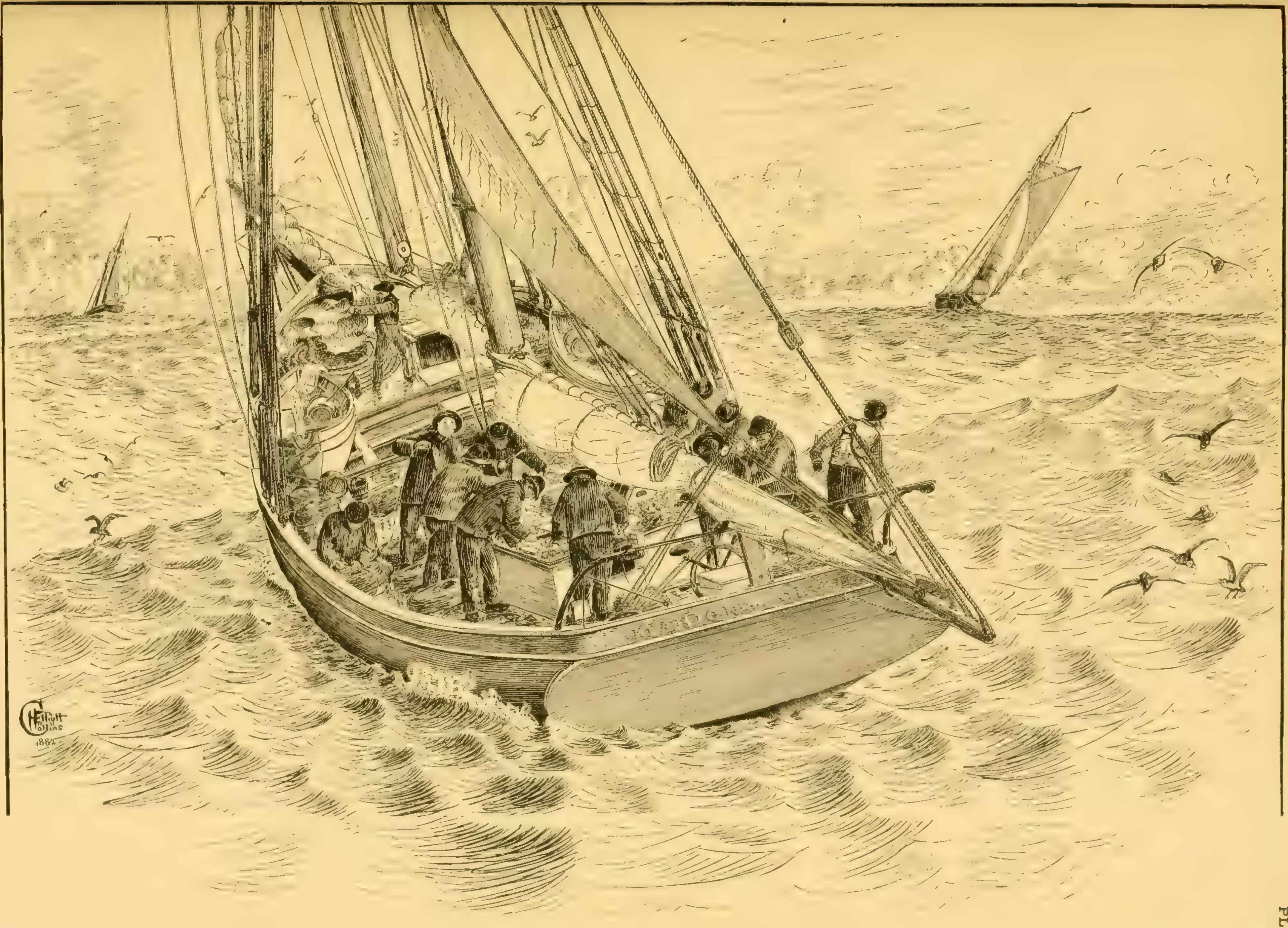


Fig. 2.

THE FRESH HALIBUT FISHERY.

FIG. 1. Hurdy-gurdy to haul trawls in deep water. (Sect. v, vol. i, pp. 10, 11, 16.)
FIG. 2. Dory, showing mode of attaching and using hurdy-gurdy. (Sect. v, vol. i, pp. 10, 11, 16.)
FIG. 3. Trawl-roller which is attached to dory gunwale to haul trawls in shoal water. (Sect. v, vol. i, p. 10.)

Drawings by Capt. J. W. Collins.

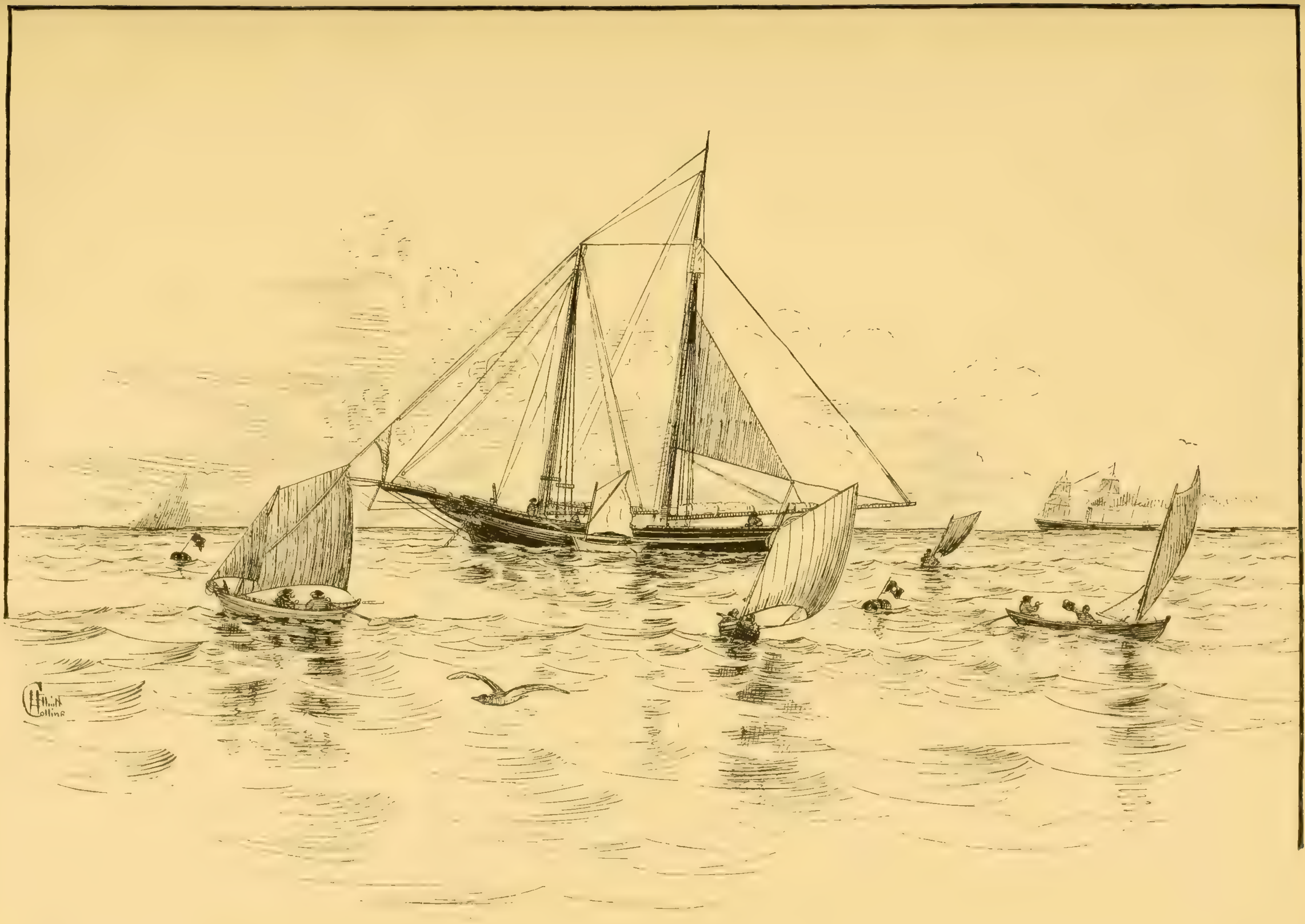


THE FRESH HALIBUT FISHERY.

Cutting bait and baiting trawls on halibut schooner at anchor on the fishing-grounds. (Sect. v, vol. i, p. 12.)

Drawing by H. W. Elliott and Capt. J. W. Collins

PLATE 8.

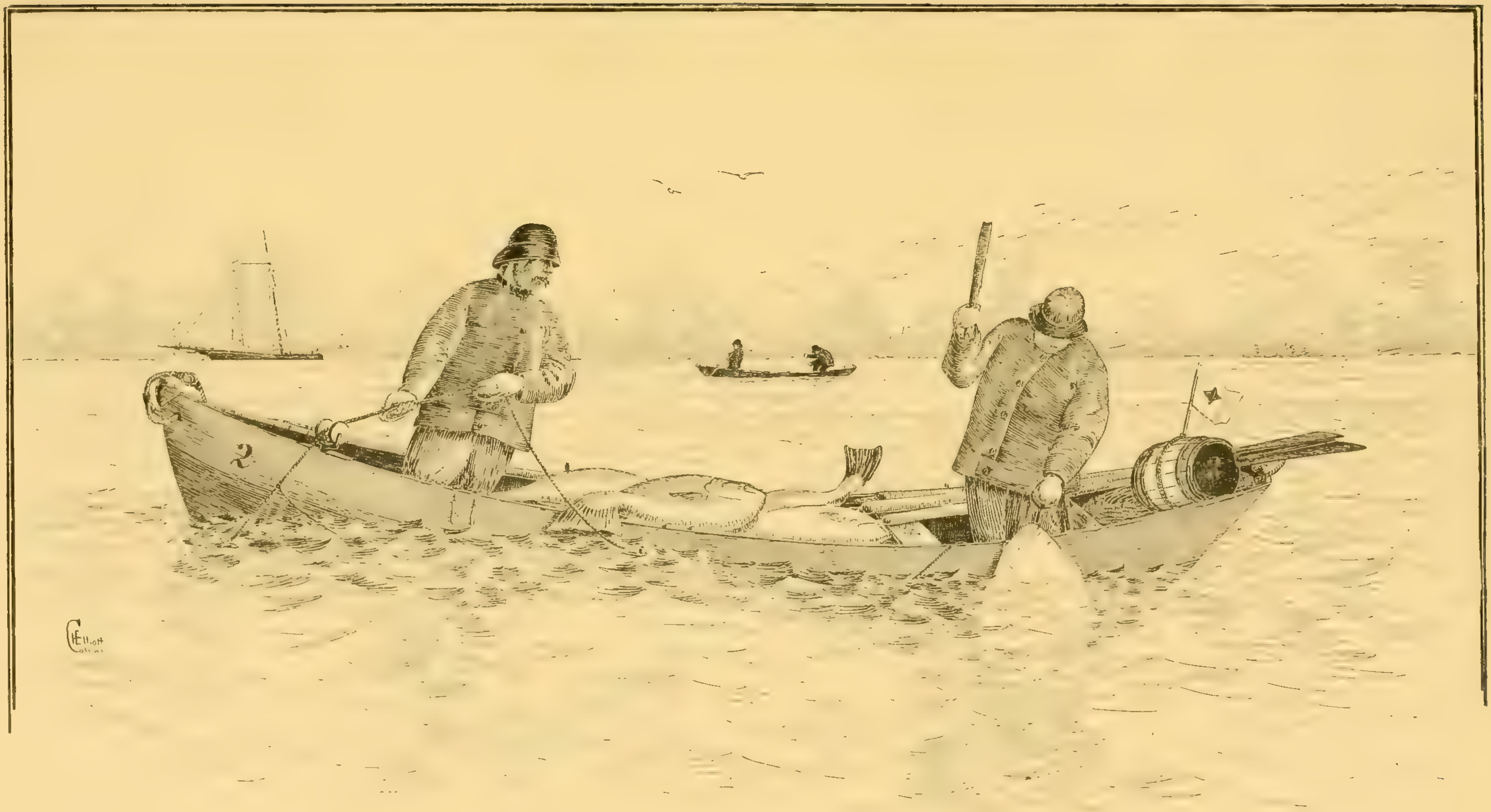


THE FRESH HALIBUT FISHERY.

Dories and crew on the way to haul the trawls; the schooner at anchor under riding sail. (Sect. v, vol. i, pp. 13-16.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

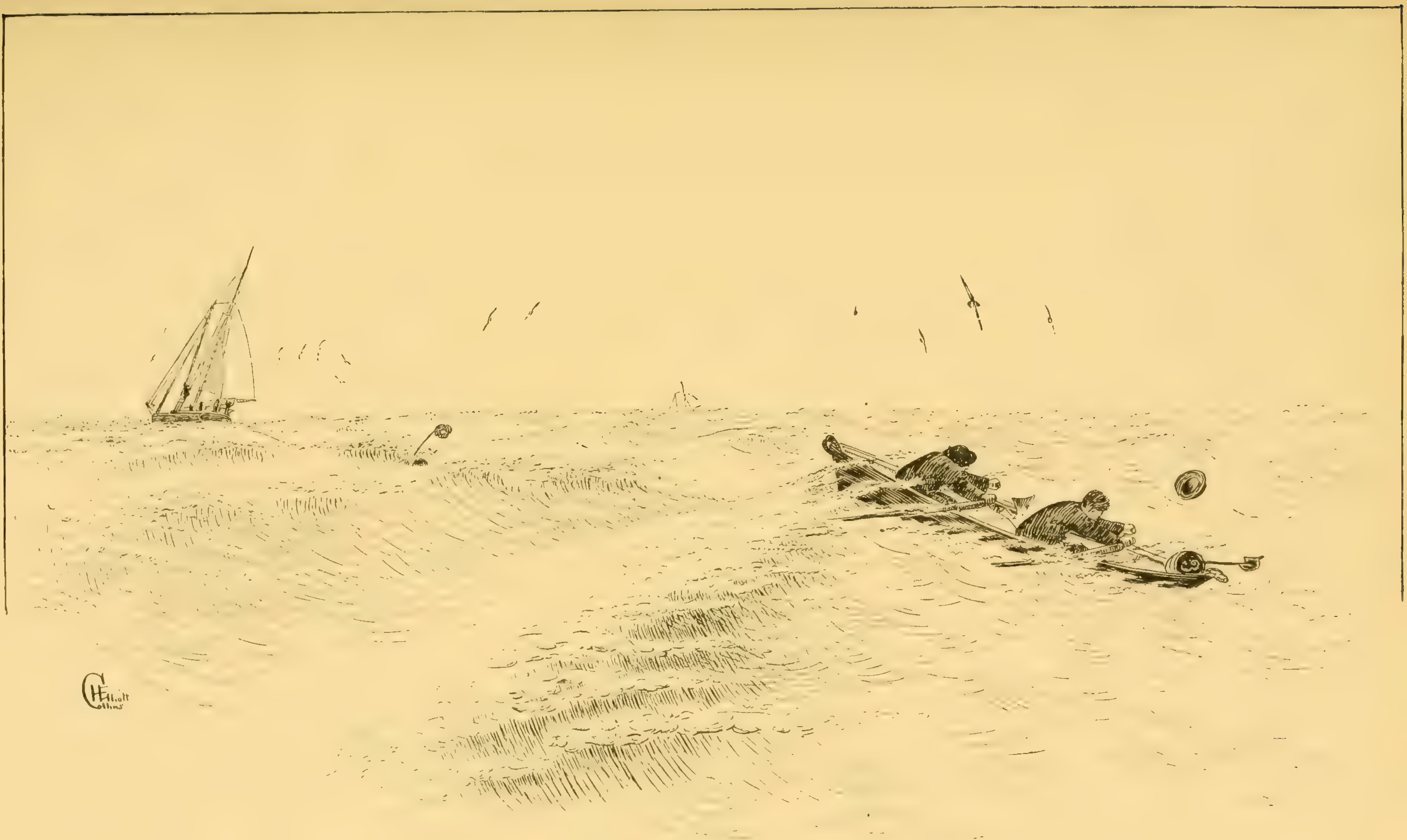
PLATE 9.



THE FRESH HALIBUT FISHERY.

Halibut dory and crew hauling the trawl, gaffing and clubbing the halibut. (Sect. v, vol. i, p. 16.)

Drawing by H. W. Elliott and Capt J. W. Collins.



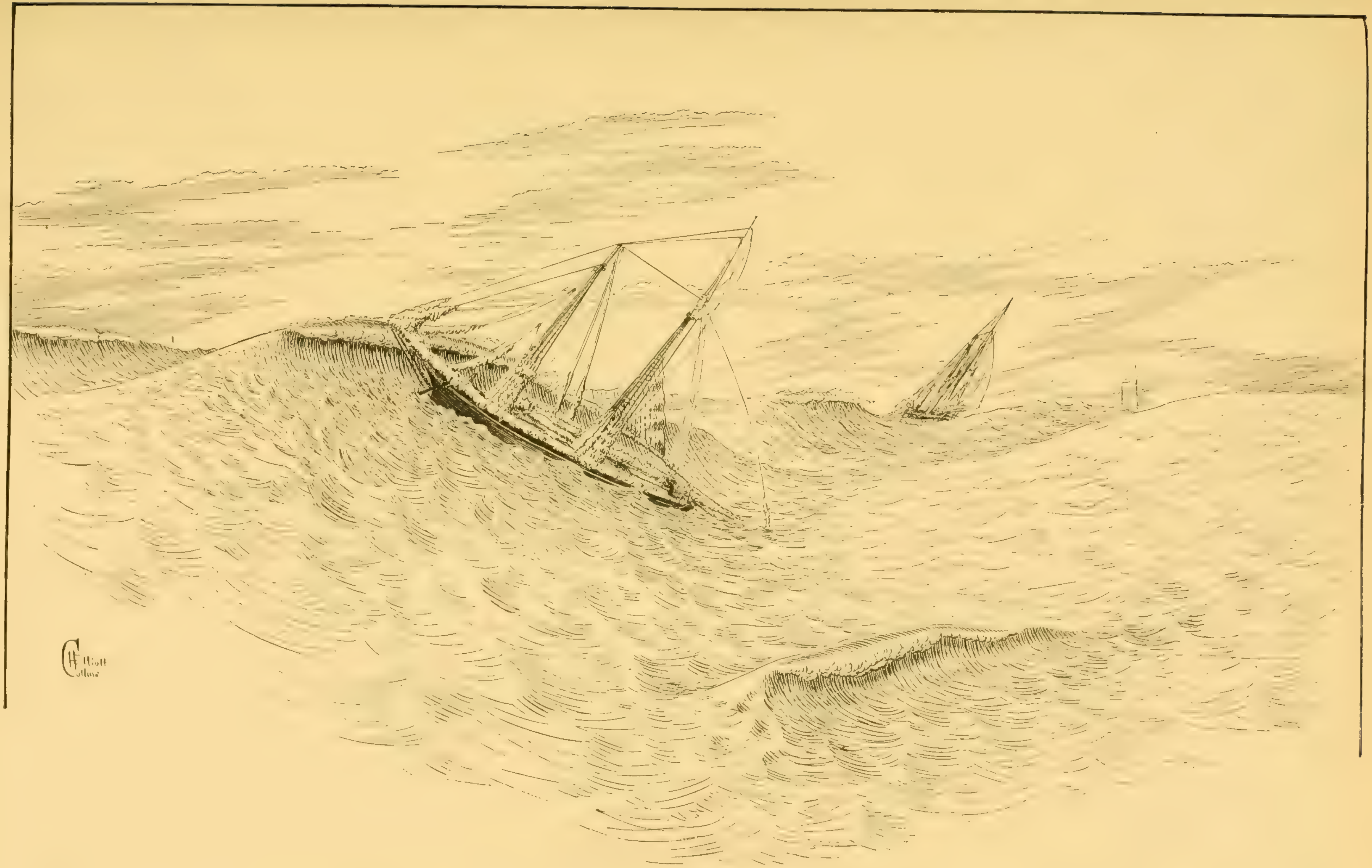
A Struggle for Life
Caught to Leeward in a Squall.

THE FRESH HALIBUT FISHERY.

Dory and crew caught to leeward in a storm while hauling the trawl. Trawl-buoy and line drifted astern of the vessel for their rescue. (Sect. v, vol. i, pp. 16, 80.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

PLATE 11.

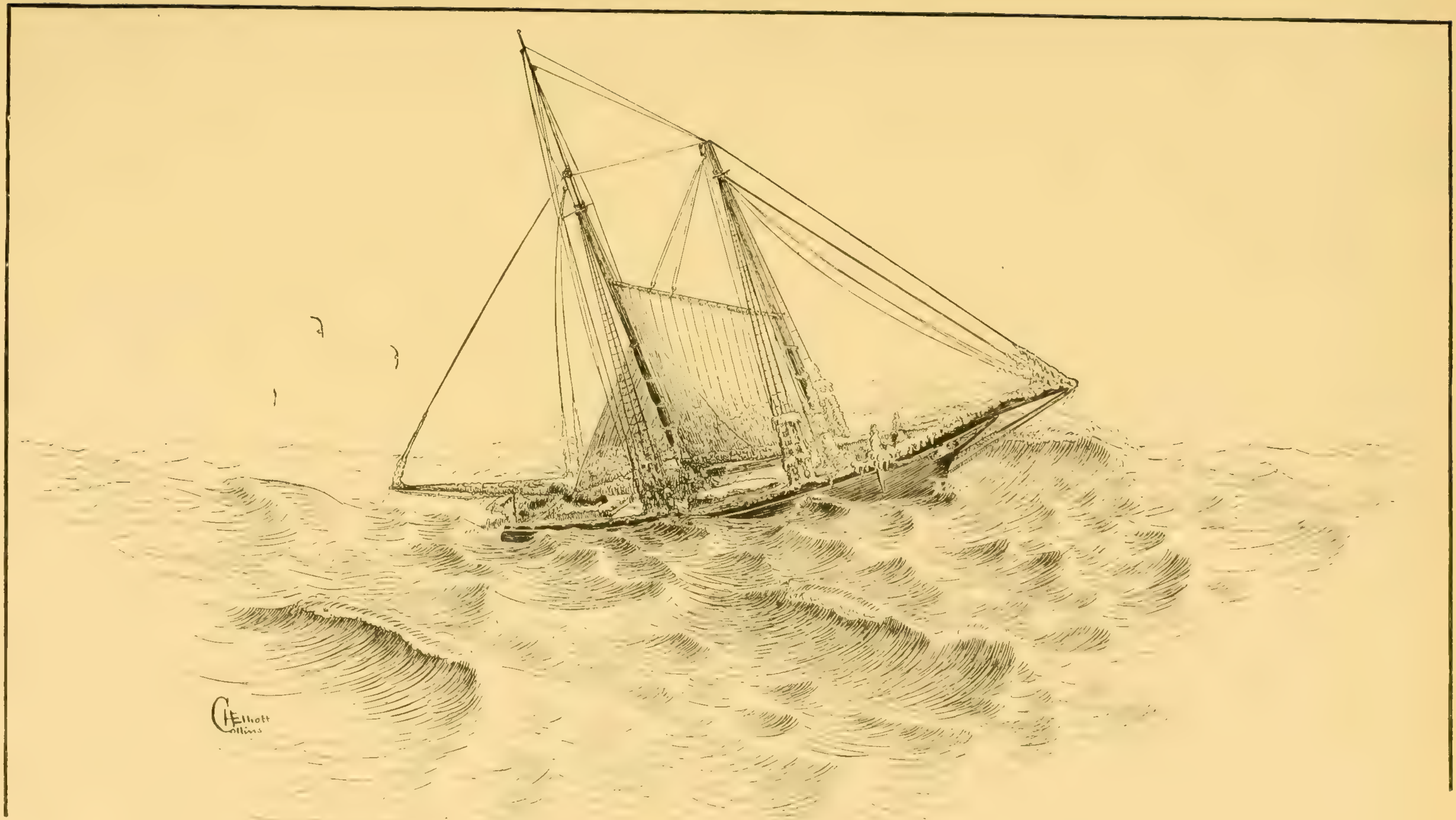


THE FRESH HALIBUT FISHERY.

Halibut schooner at anchor on the Grand Bank in winter, riding out a gale. (Sect. v, vol. i, p. 84.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

PLATE 12.

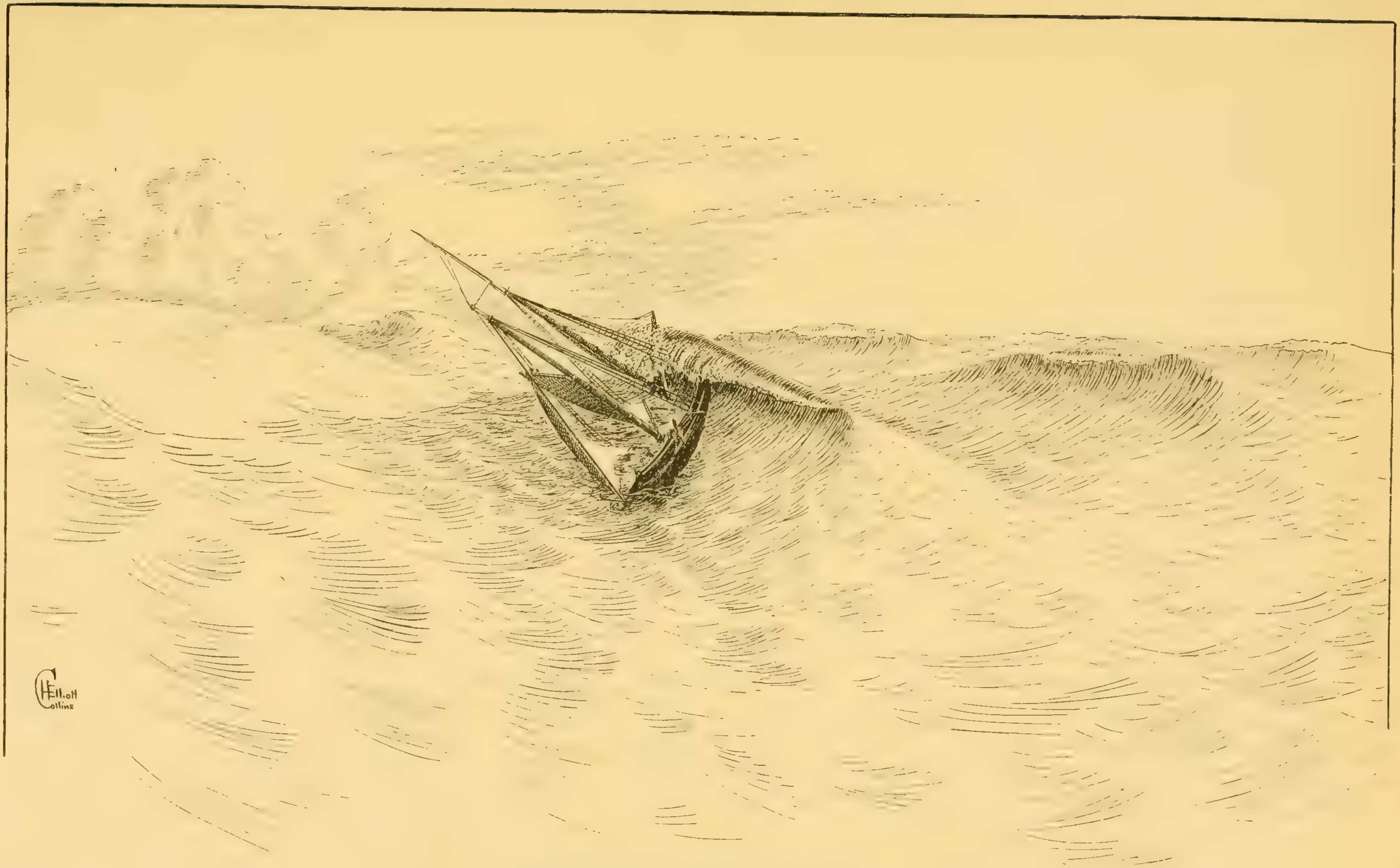


THE FRESH HALIBUT FISHERY.

Halibut schooner lying to in a gale on the Banks, under riding sail and double-reefed foresail. (Sect. v, vol. 1, p. 77.

Drawing by H. W. Elliott and Capt. J. W. Collins.

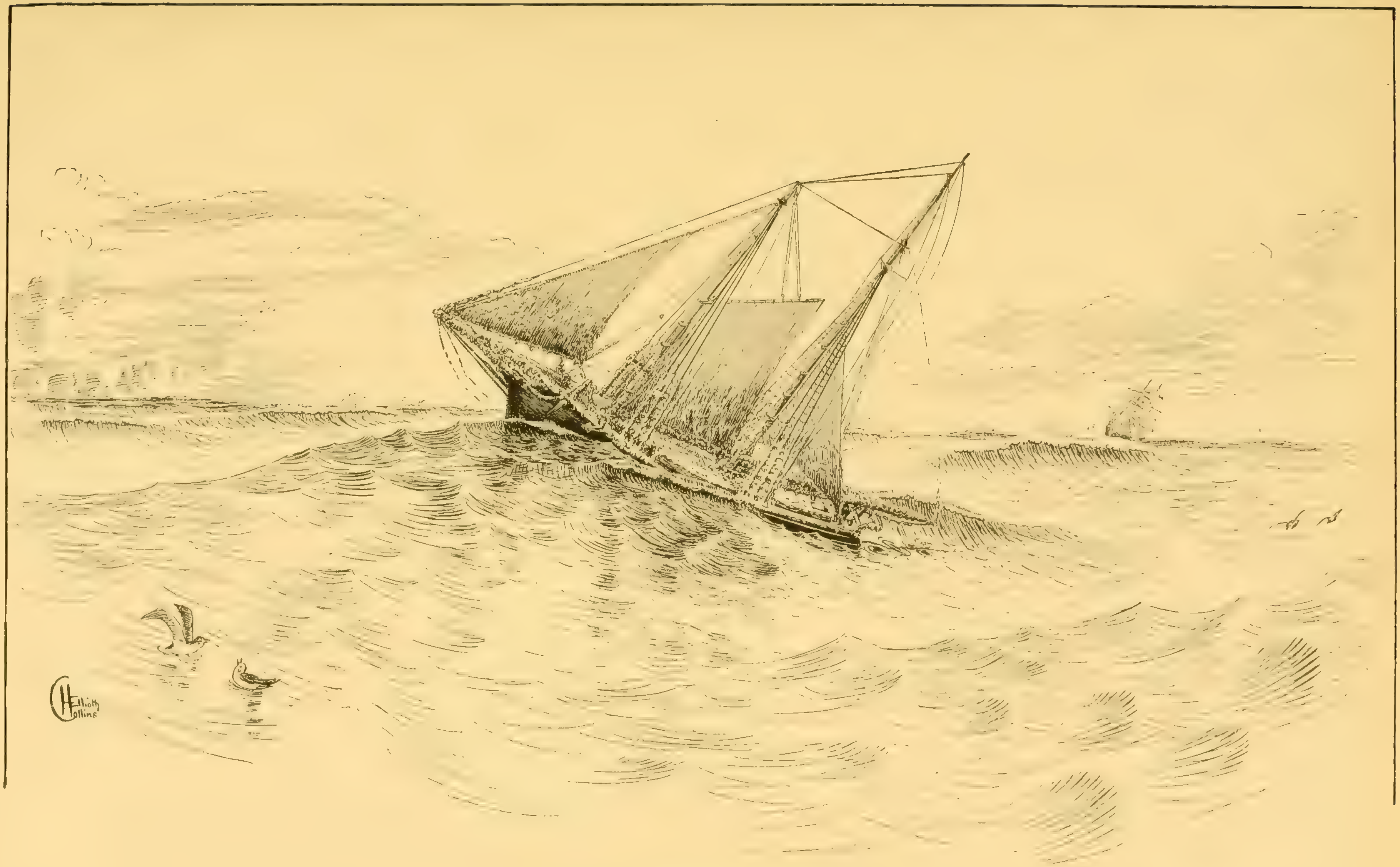
PLATE 13.



THE FRESH HALIBUT FISHERY.

Halibut schooner tripped by a heavy sea. (Sect. v, vol. i, p. 70.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

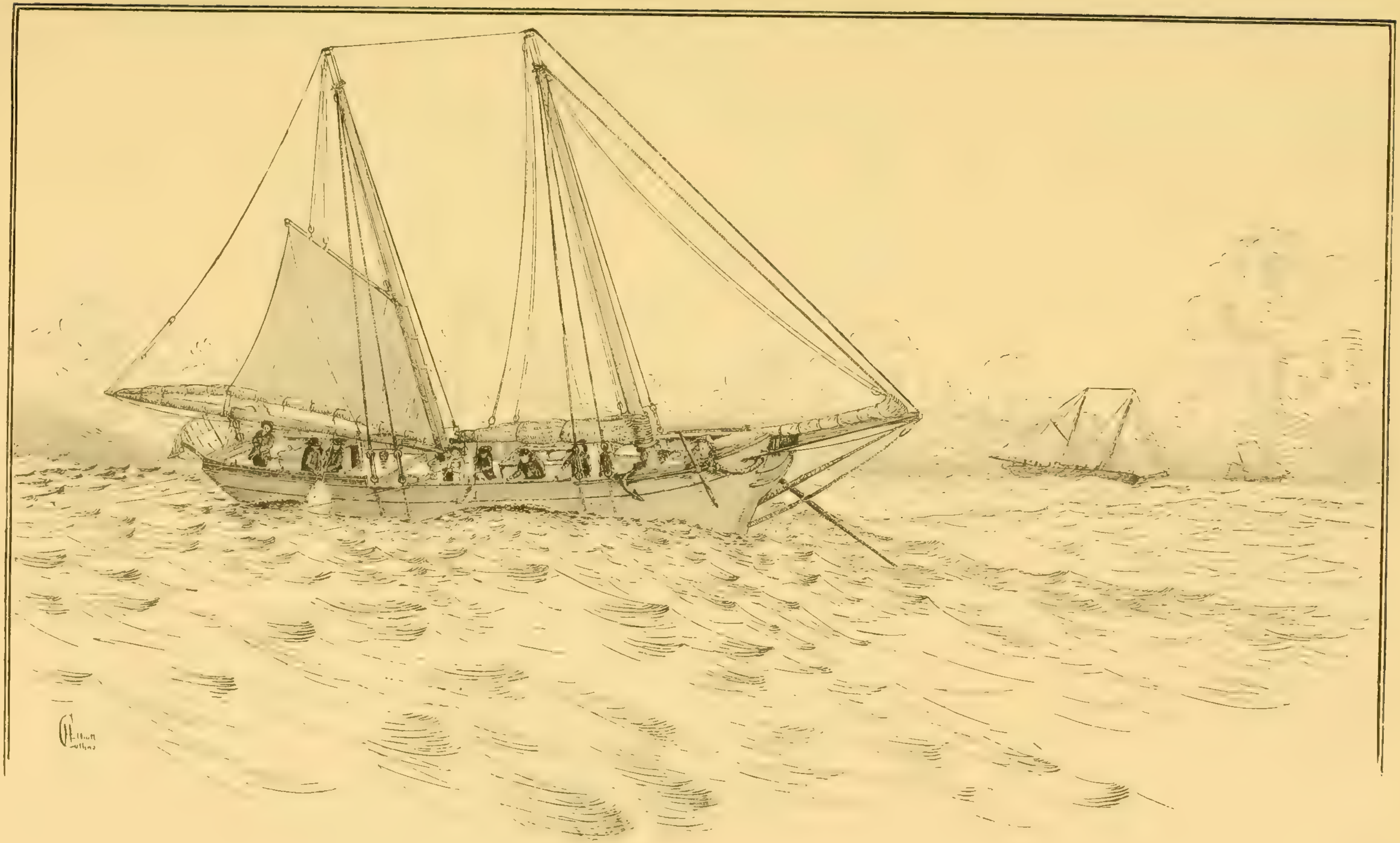


THE FRESH HALIBUT FISHERY.

Halibut schooner in winter; head-reaching under short sail. (Sect. v. vol. i, p. 20.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

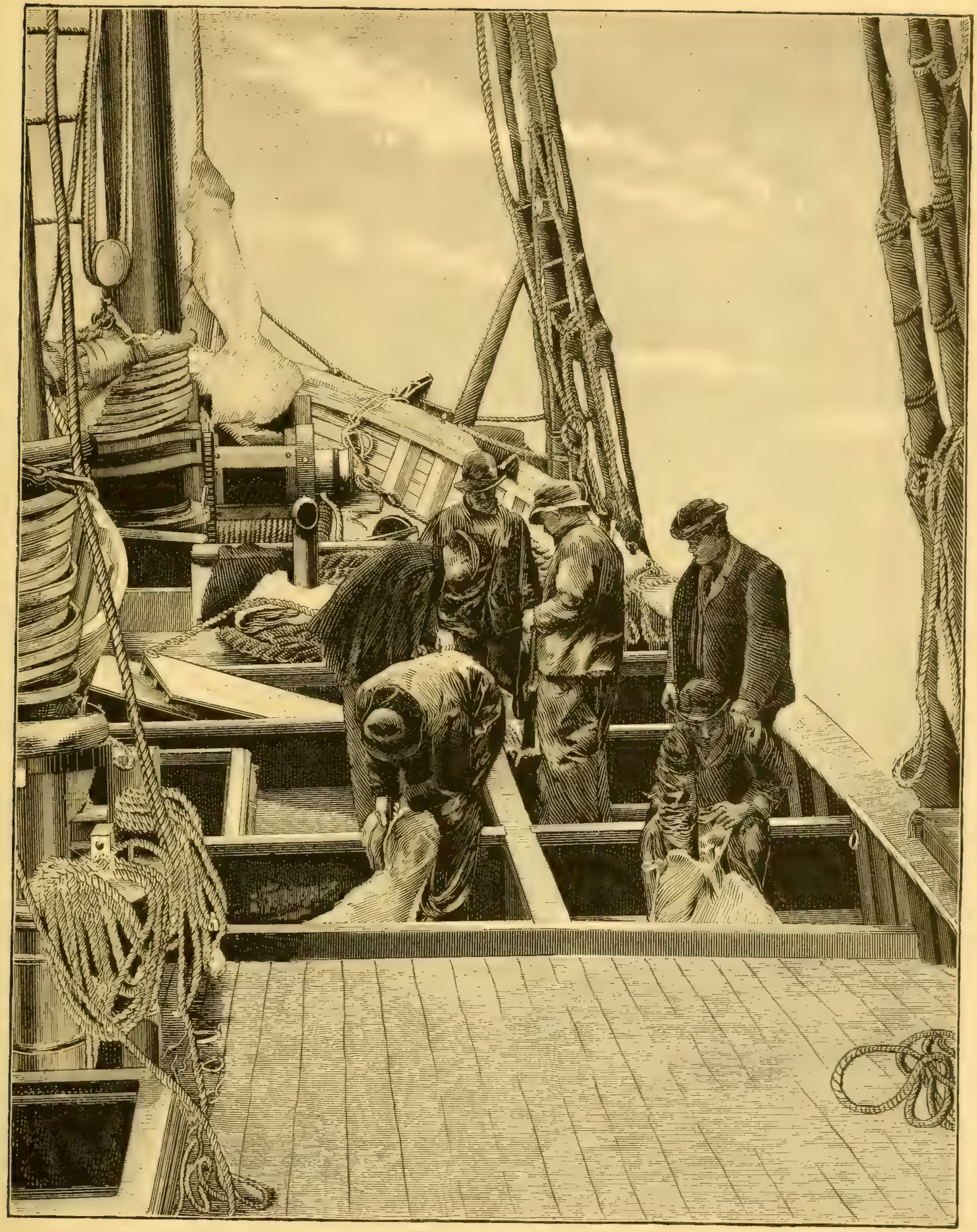
PLATE 15.



THE FRESH HALIBUT FISHERY.

Old style halibut schooner; hand-line fishing from deck: 1840 to 1850. (Sect. v, vol. i, pp. 29-43.)

Drawing by H. W. Elliott and Capt. J. W. Collins.



THE FRESH HALIBUT FISHERY.

Dressing halibut on deck of schooner for icing in the hold. (Sect. v, vol. i, p. 19.)

From a photograph by T. W. Smillie, 1882.

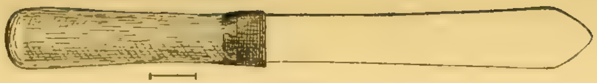


Fig. 1

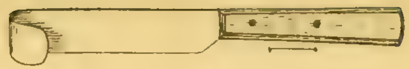


Fig. 2.

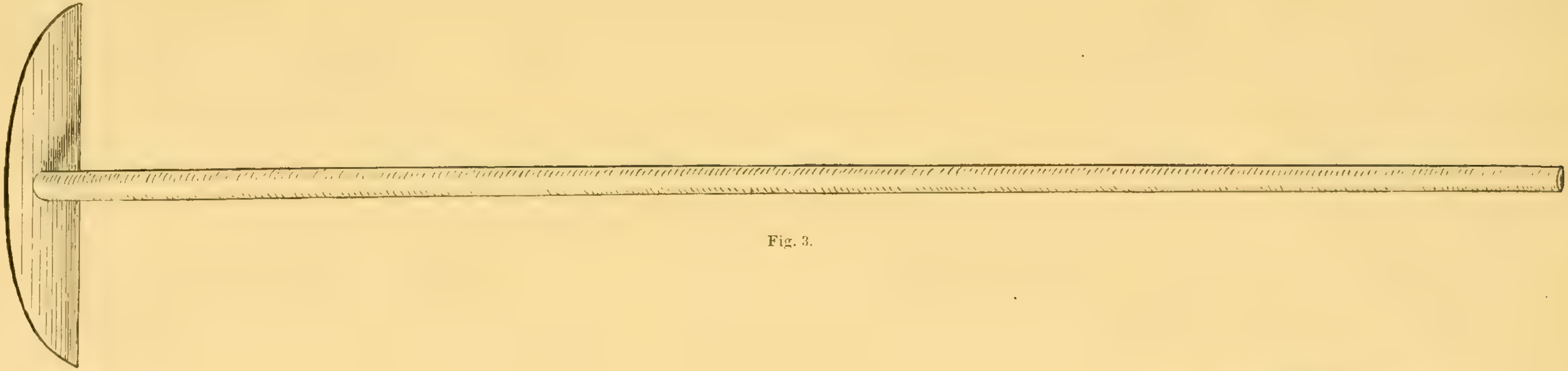


Fig. 3.

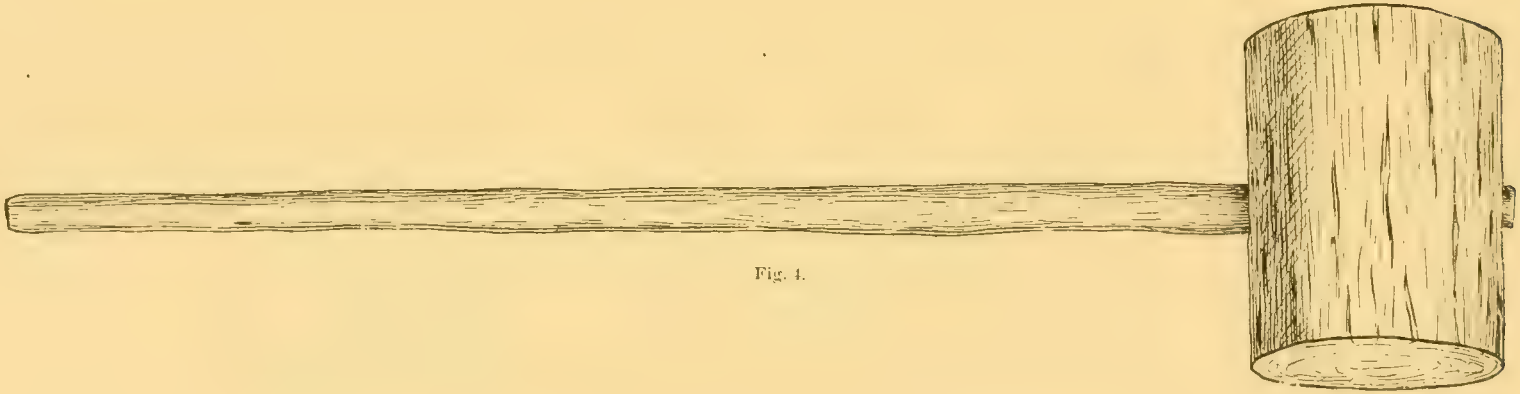


Fig. 4.

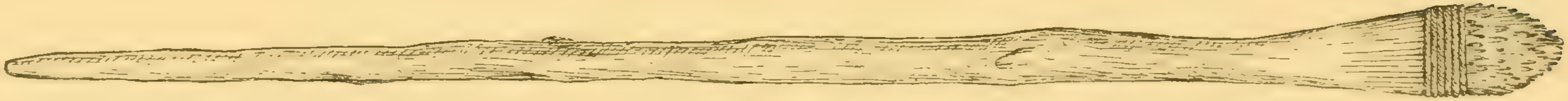


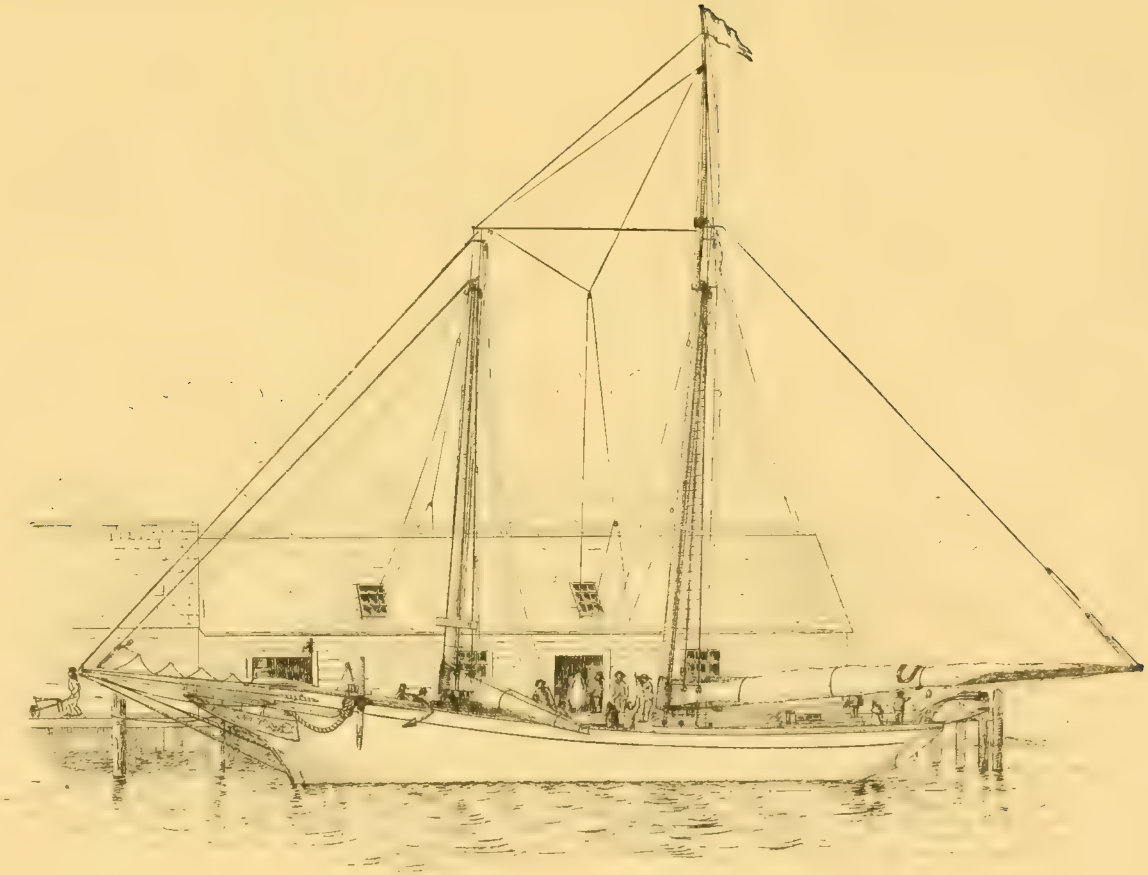
Fig. 5.

THE FRESH HALIBUT FISHERY.

Fig. 1. Halibut cutting knife. (Sect. v, vol. i, p. 19.)
Fig. 2. Scraping-knife to remove muscle and flesh from backbone after cutting. (Sect. v, vol. i, p. 19.
Fig. 3. Squilgee for pushing broken ice in pens. (Sect. v, vol. i, p. 19.)
Fig. 4. Oak mallet for breaking ice. (Sect. v, vol. i, p. 19.)
Fig. 5. Oak broom for scrubbing halibut. (Sect. v, vol. i, p. 19.)

Drawings by Capt. J. W. Collins.

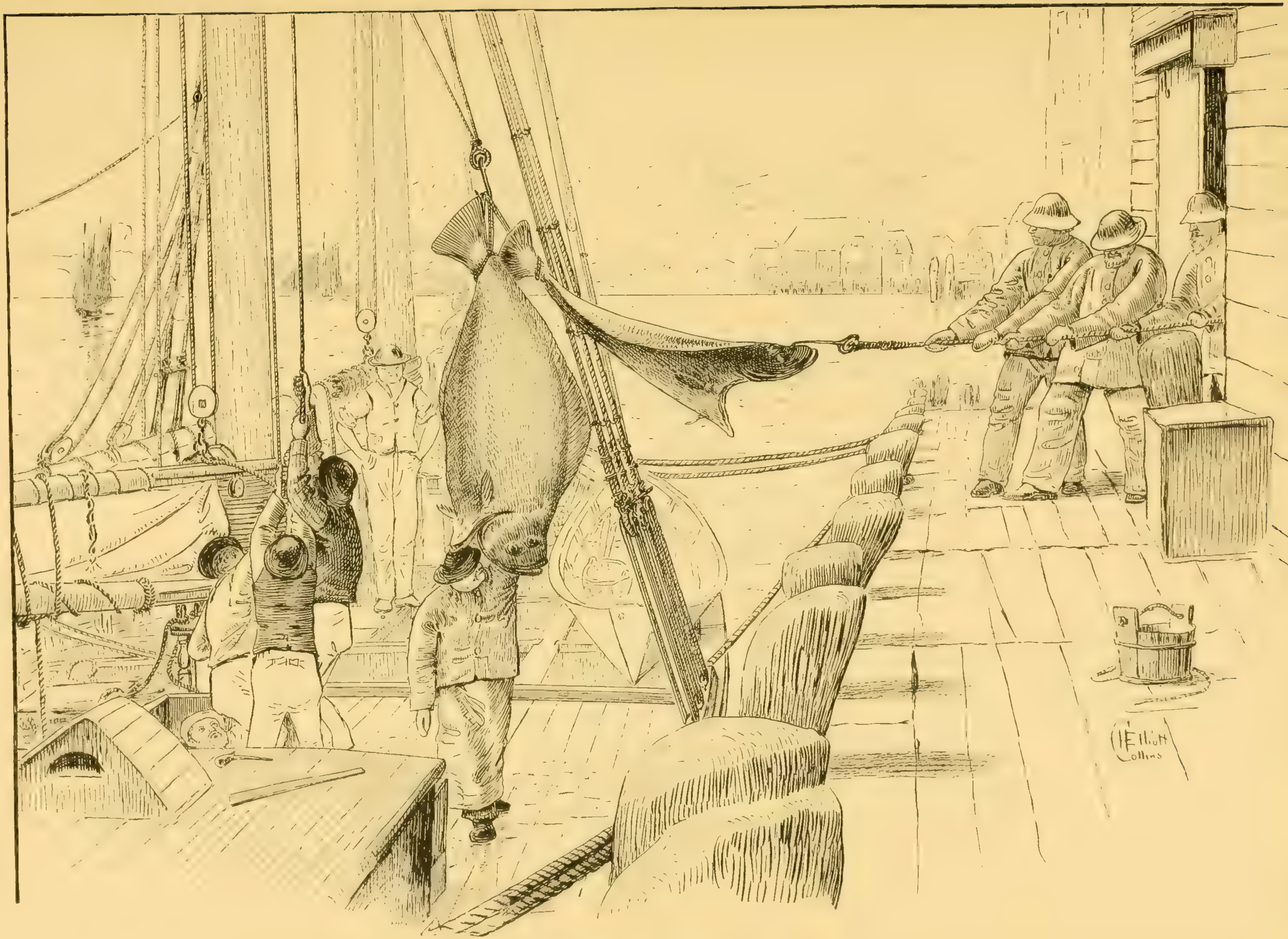
PLATE 18.



THE FRESH HALIBUT FISHERY.

General view of schooner discharging fare of fresh halibut at Gloucester, Mass. (Sect. v, vol. i, p. 21.)

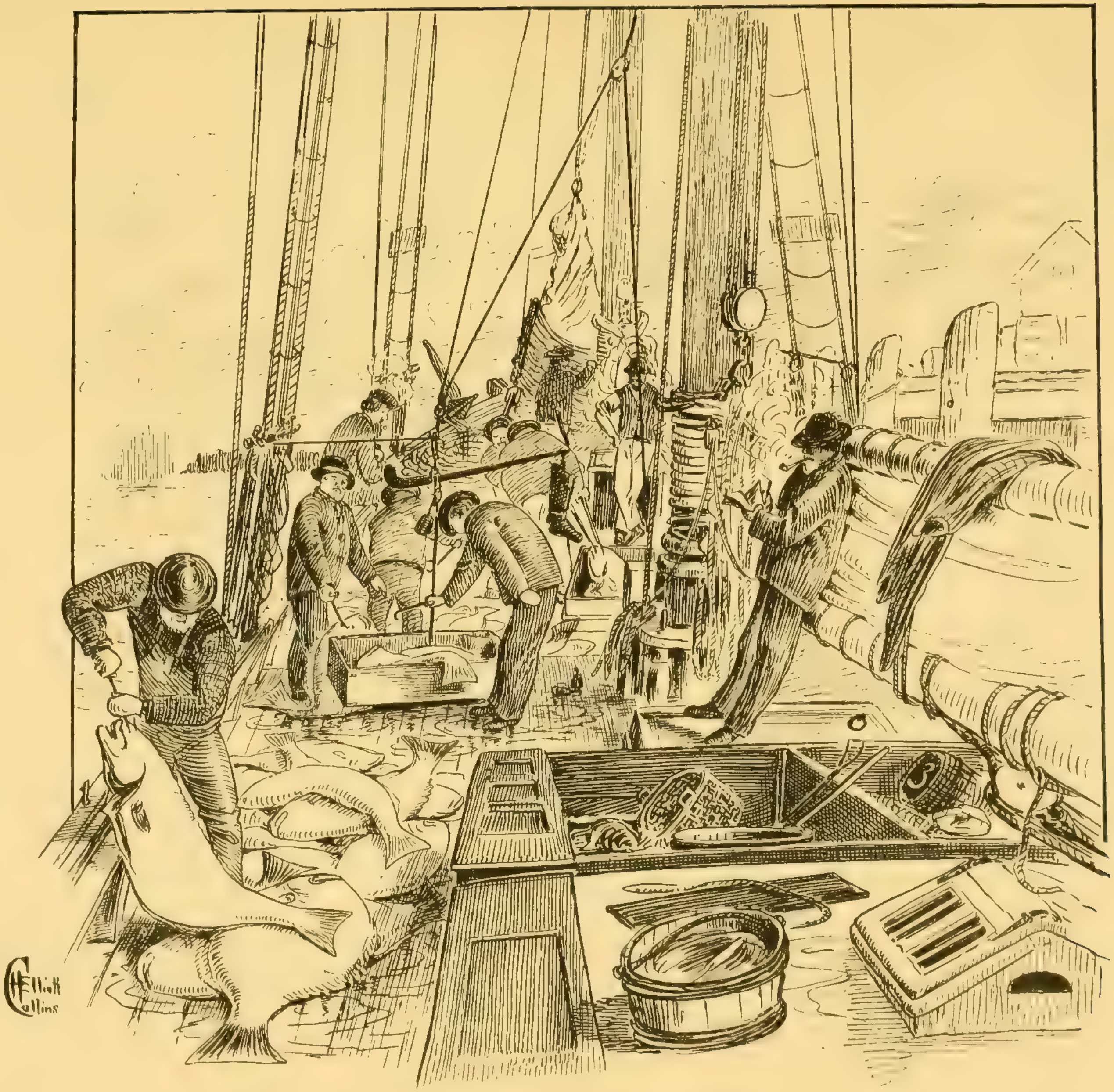
Drawing by Capt. J. W. Collins.



THE FRESH HALIBUT FISHERY.

Hoisting halibut from hold of schooner, at Gloucester, Mass. (Sect. v, vol. i. p. 22.)

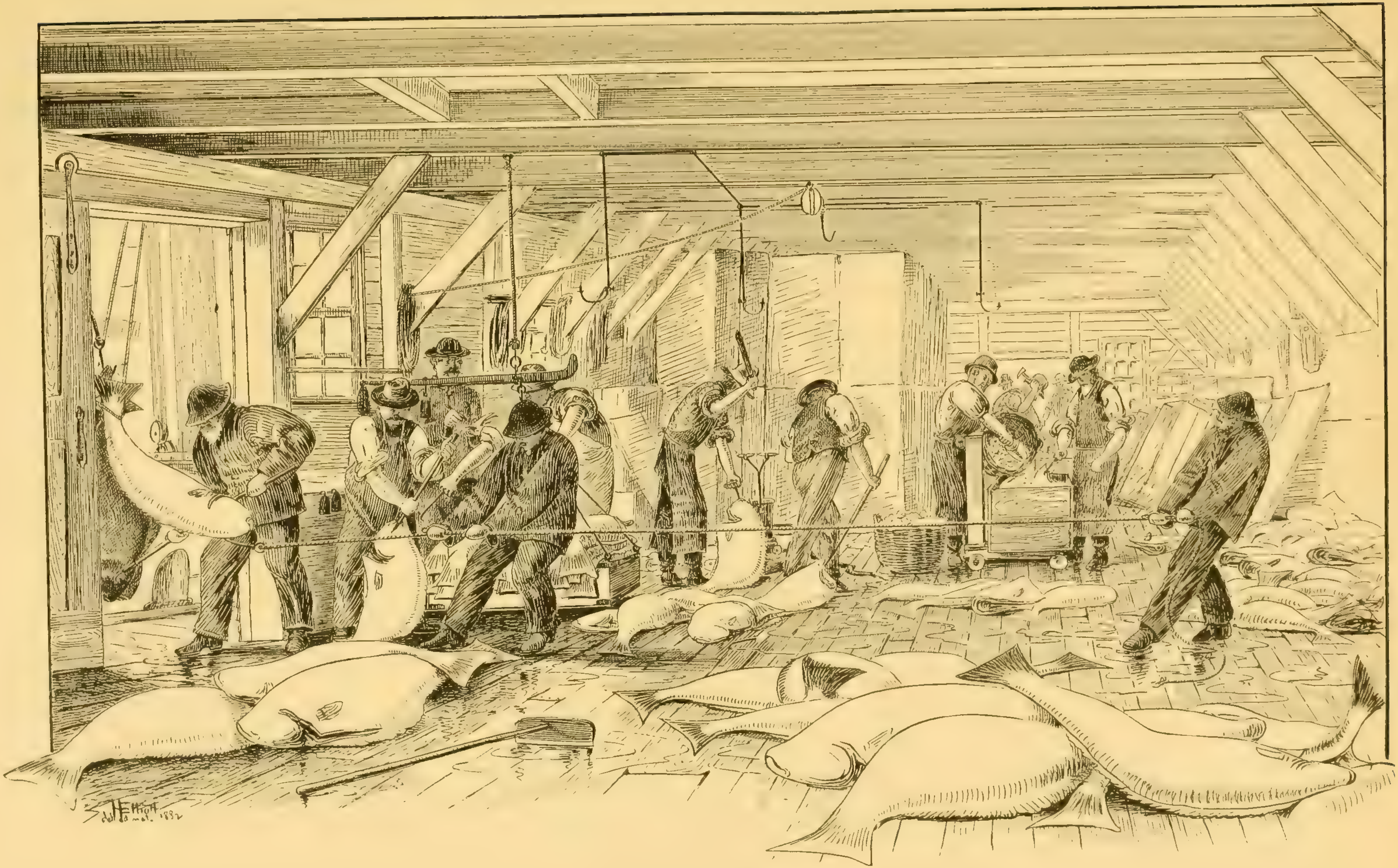
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE FRESH HALIBUT FISHERY.

Weighing and selling halibut on deck of George's Bank hand-line cod schooner. These vessels often catch halibut while fishing for cod. (Sect. v, vol. i, p. 22.)

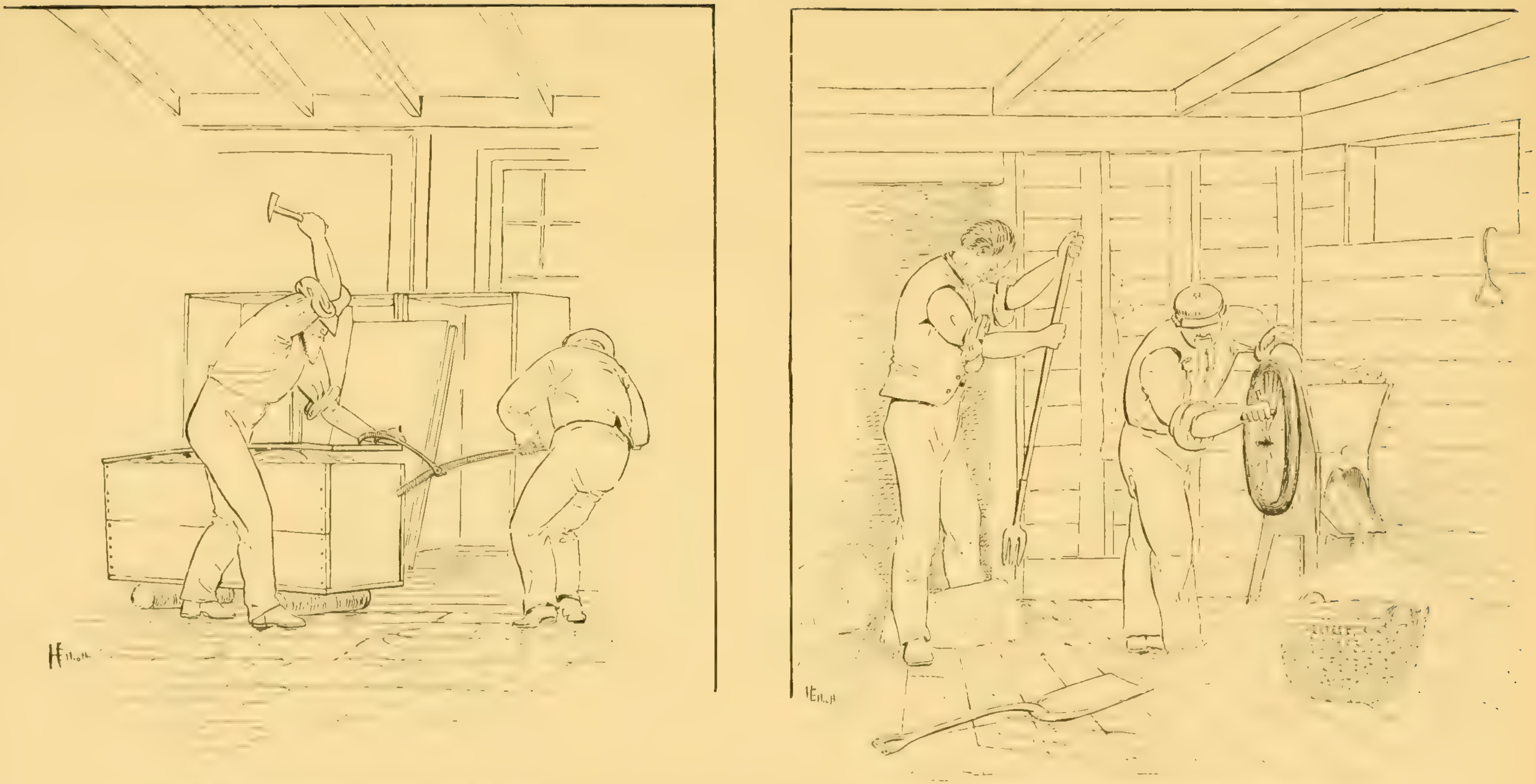
Drawing by H. W. Elliott and Capt. J. W. Collins, 1882.


H Elliott del. ad nat. 1882

THE FRESH HALIBUT FISHERY.

Handling fresh halibut at Gloucester, Mass. Weighing, unheading, and packing in ice for shipment by rail. (Sect. v, vol. i, p. 22.)

Drawn by H. W. Elliott, 1882.



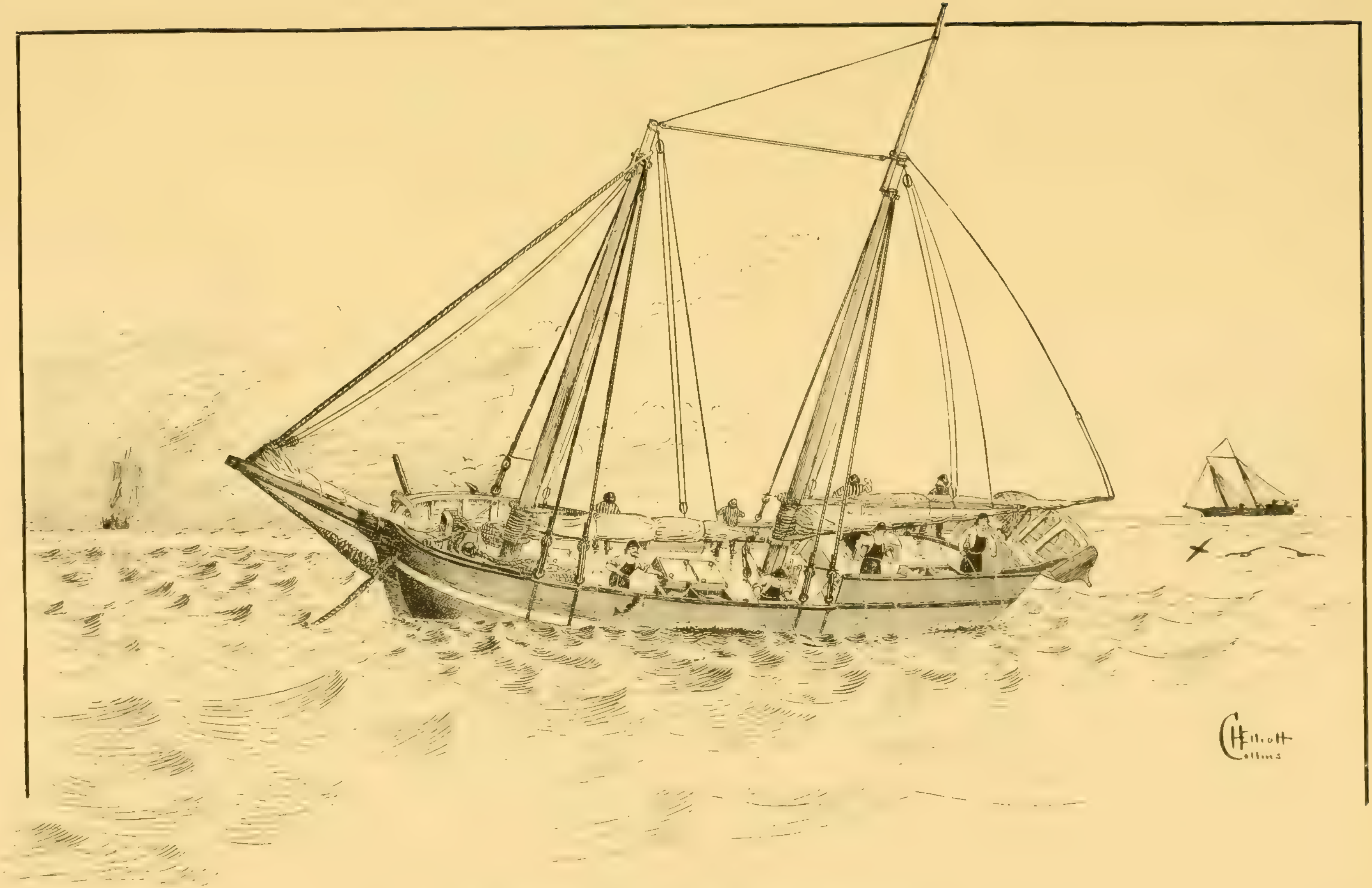
Nailing covers on the boxes; the use of the devil's claw.

Preparing ice with pick and grinding machine.

THE FRESH HALIBUT FISHERY.

Packing fresh halibut at Gloucester, Mass. (Sect. v, vol. i, p. 22.)

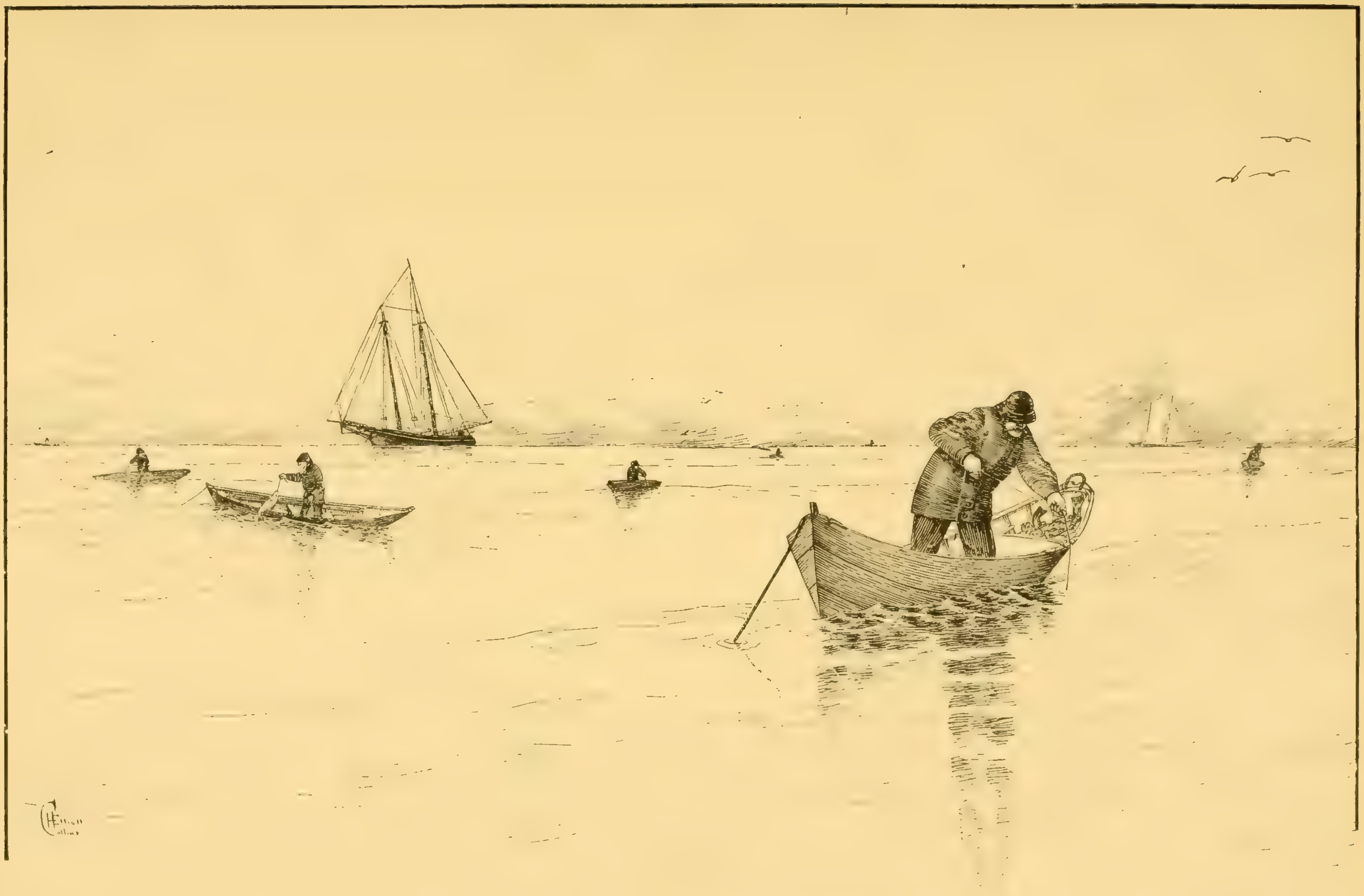
Drawings by H. W. Elliott.



THE BANK HAND-LINE COD FISHERY.

Old style Grand Bank cod schooner; crew at rail hand-line fishing. (Sect. v, vol. i, pp. 125, 126.)

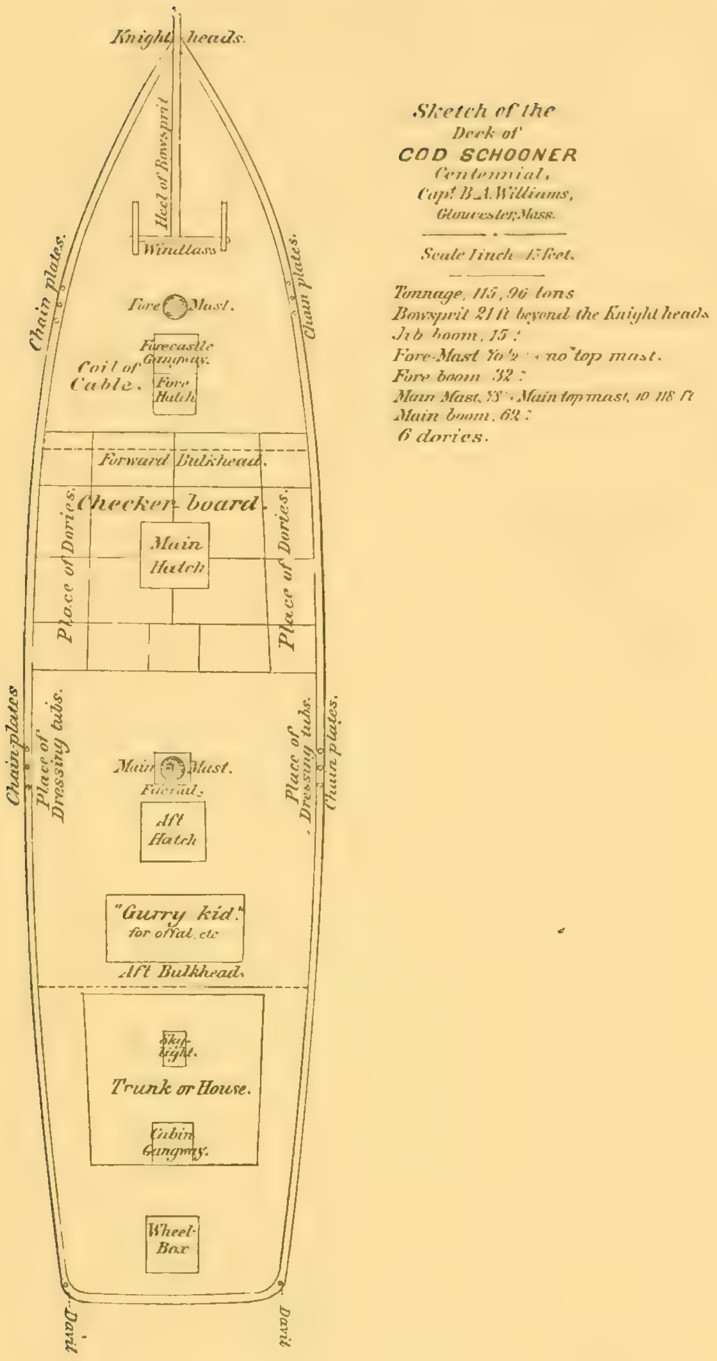
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE BANK HAND-LINE COD FISHERY.

Hand-line dory cod fishing on the Grand Bank. (Sect. v. vol. i. p. 126.)

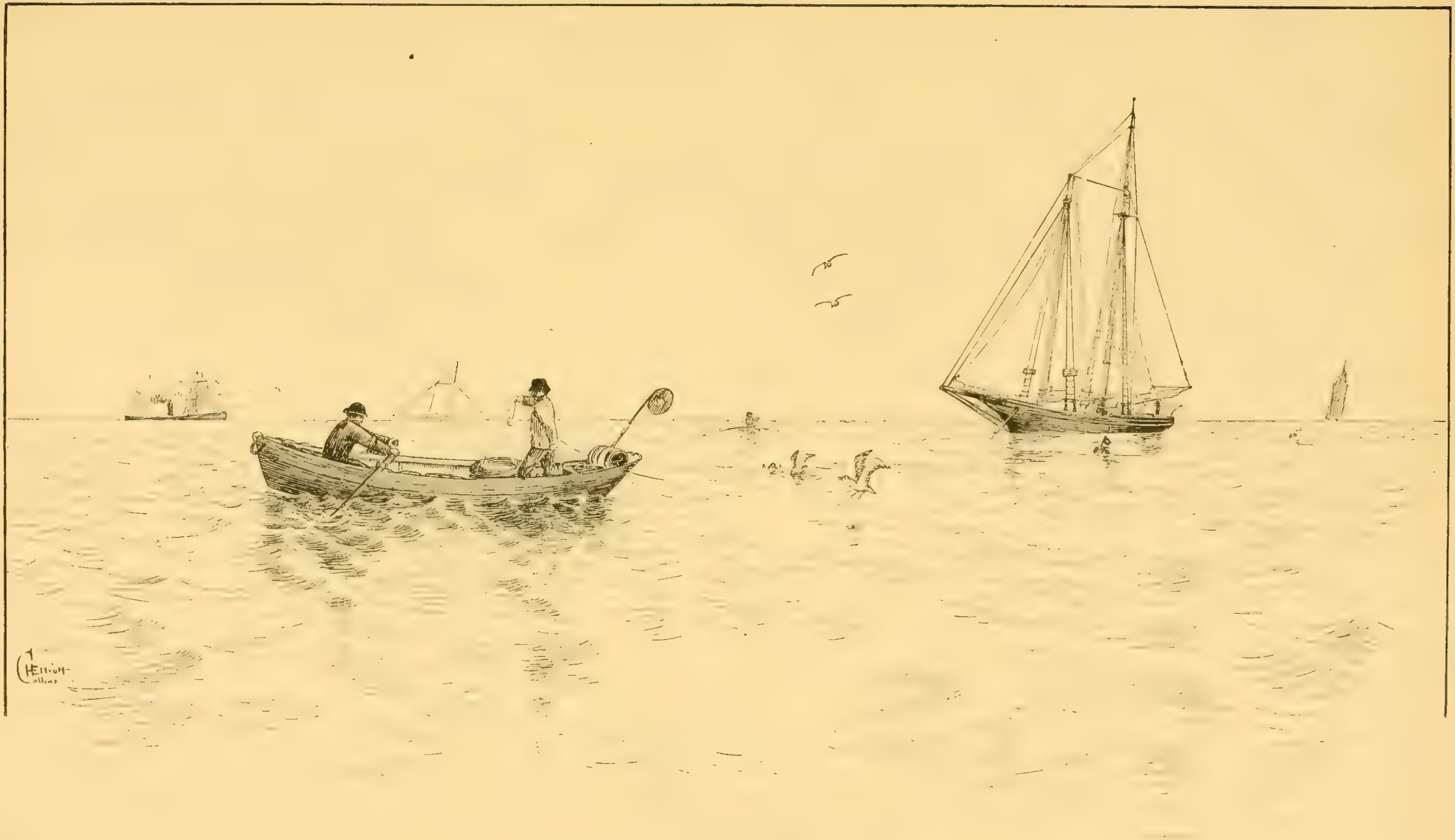
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE BANK TRAWL-LINE COD FISHERY.

Deck plan of cod schooner Centennial, of Gloucester, Mass. (Sect. v, vol. i, p. 149.)

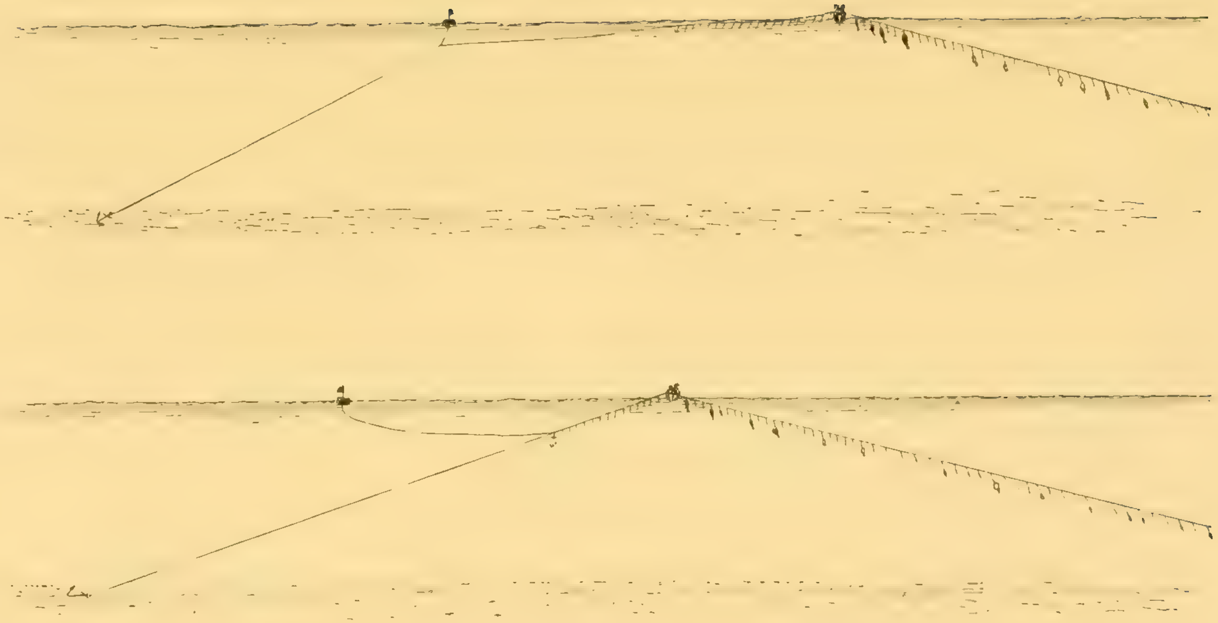
Drawing by Capt. J. W. Collins.



THE BANK TRAWL-LINE COD FISHERY.

Dory and crew setting cod trawl-lines on the Bank. (Sect. v, vol. i, pp. 152, 176.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

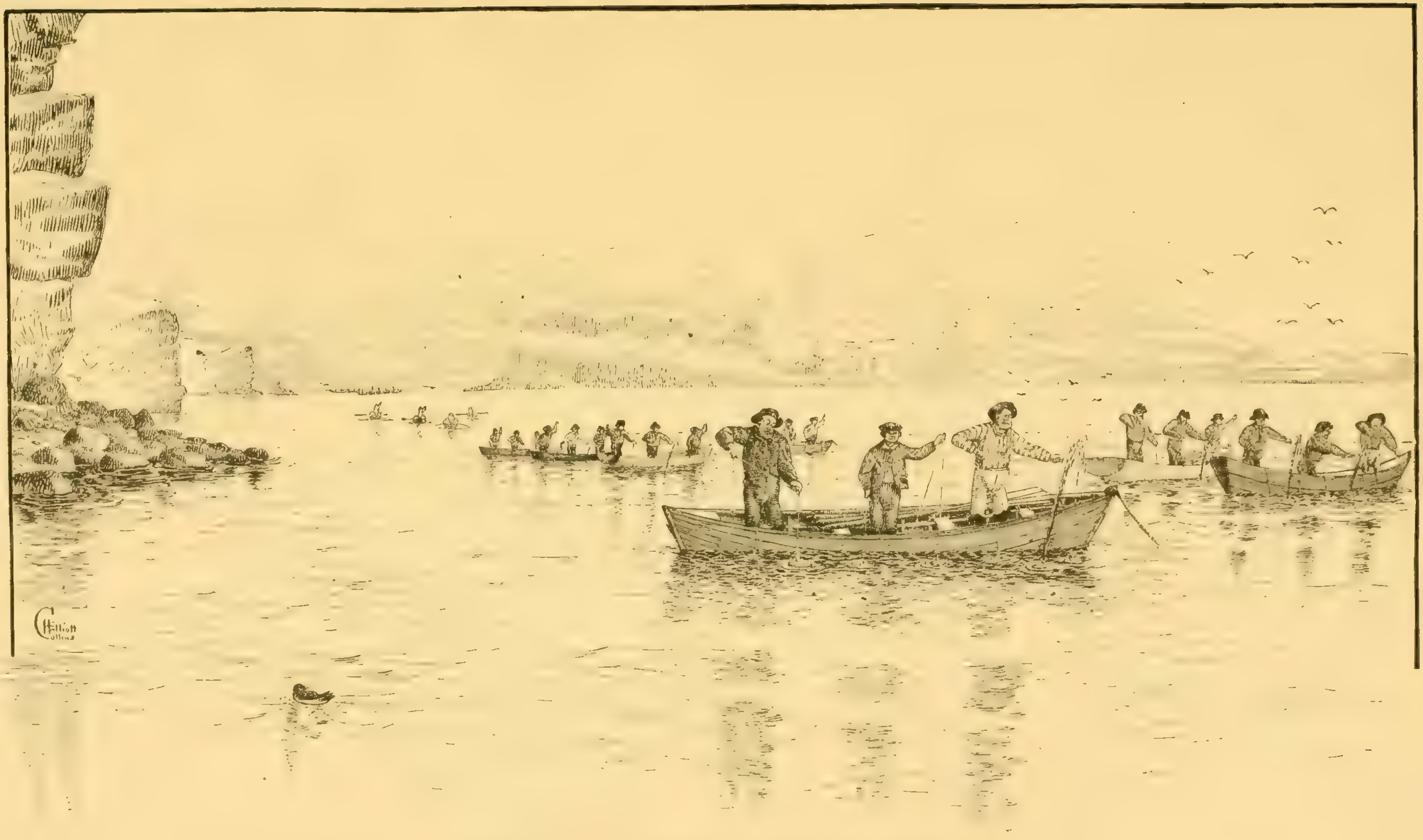


THE BANK TRAWL-LINE COD FISHERY.

Underrunning cod trawls; two methods of setting trawl for underrunning. (Sect. v. vol. i, pp. 154, 177.)

1, set with bridle. 2, set straight.

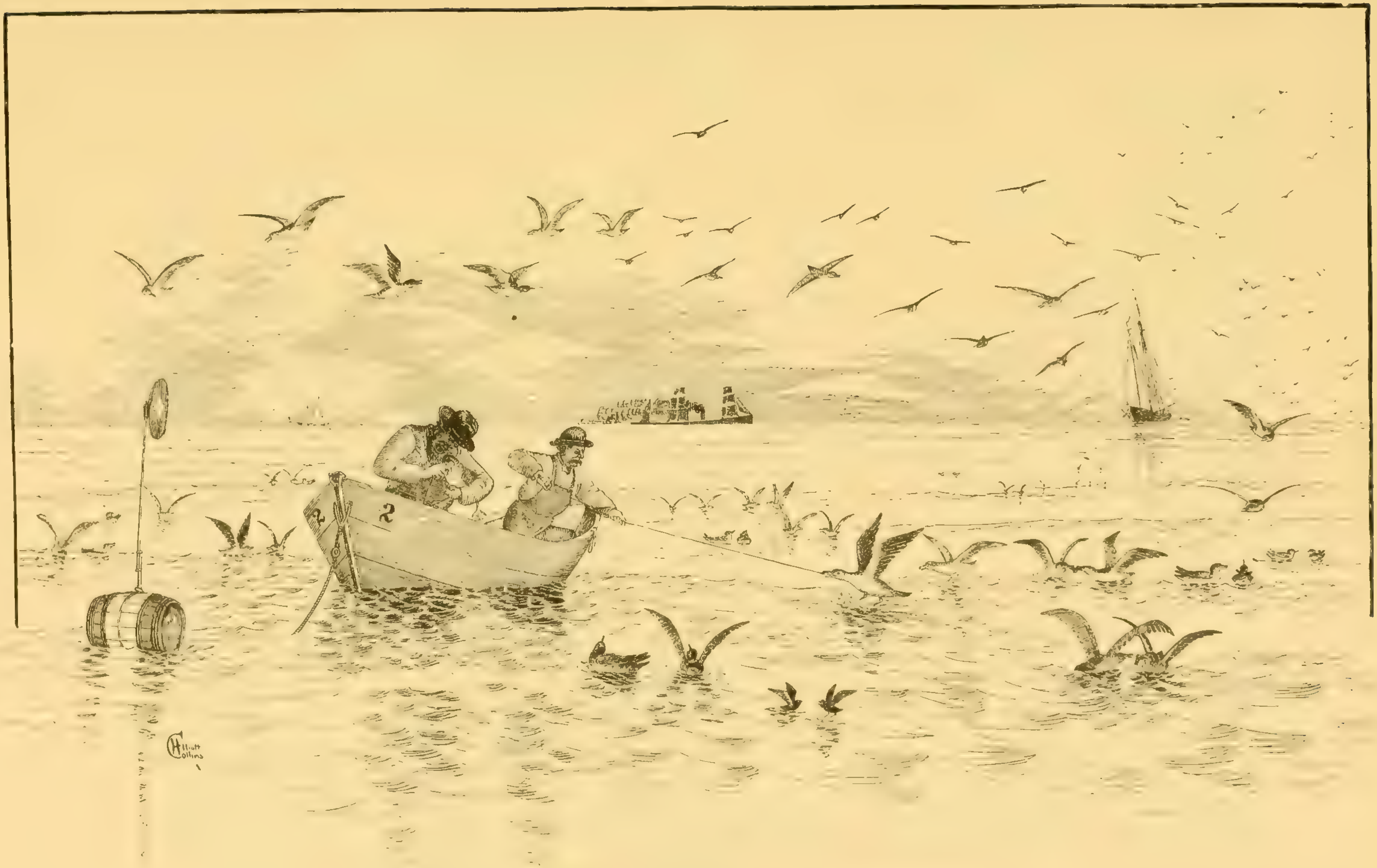
Drawings by Capt. J. W. Collins.



THE BANK TRAWL-LINE COD FISHERY.

Newfoundland fishermen catching squid for sale as cod bait to United States vessels. (Sect. v, vol. i, pp. 152, 154.)

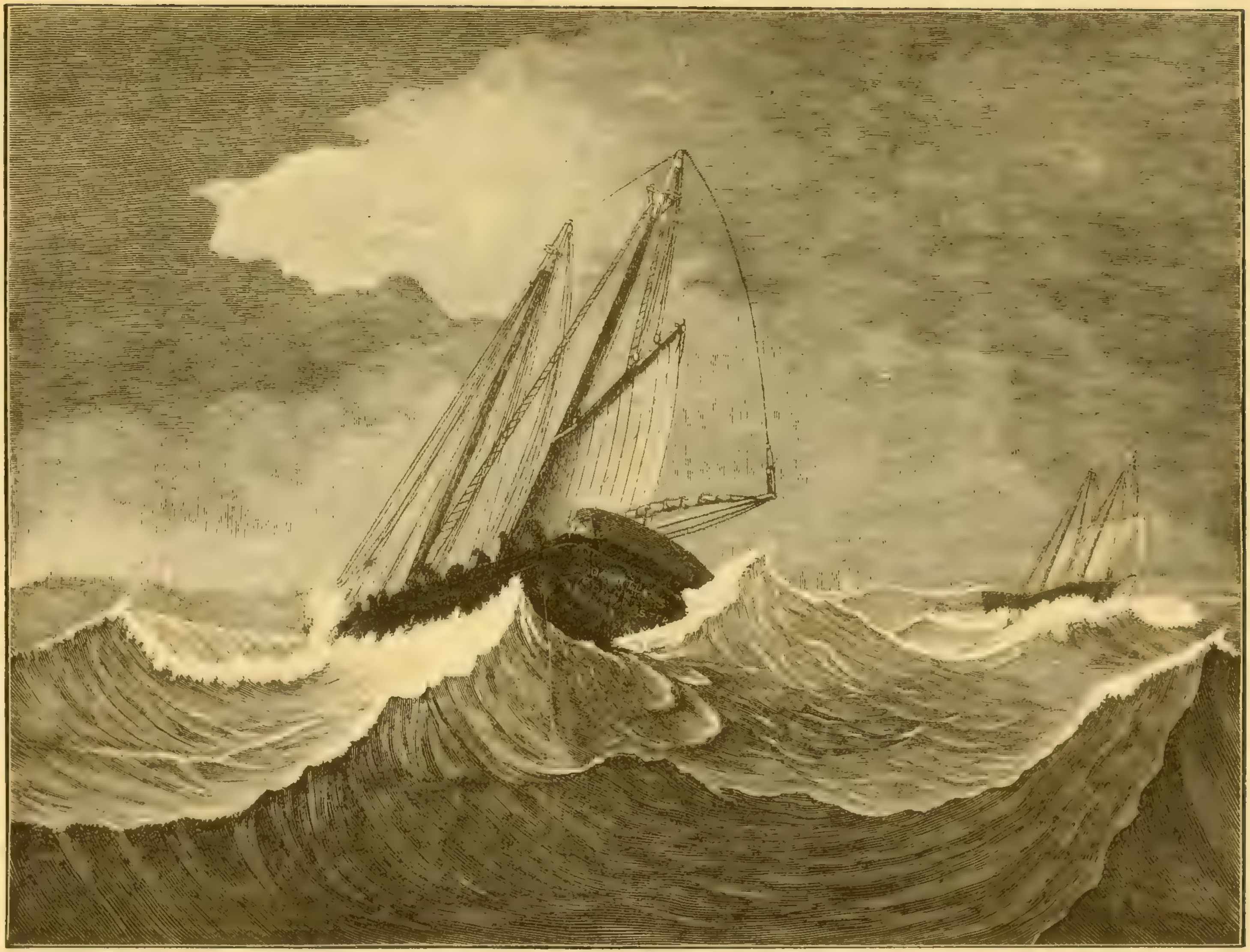
Drawing by H. W. Elliott and Capt. J. W. Collins



THE BANK TRAWL-LINE COD FISHERY.

Dory crew of cod fishermen catching birds for bait. (Sect. v, vol. i, p. 152.)

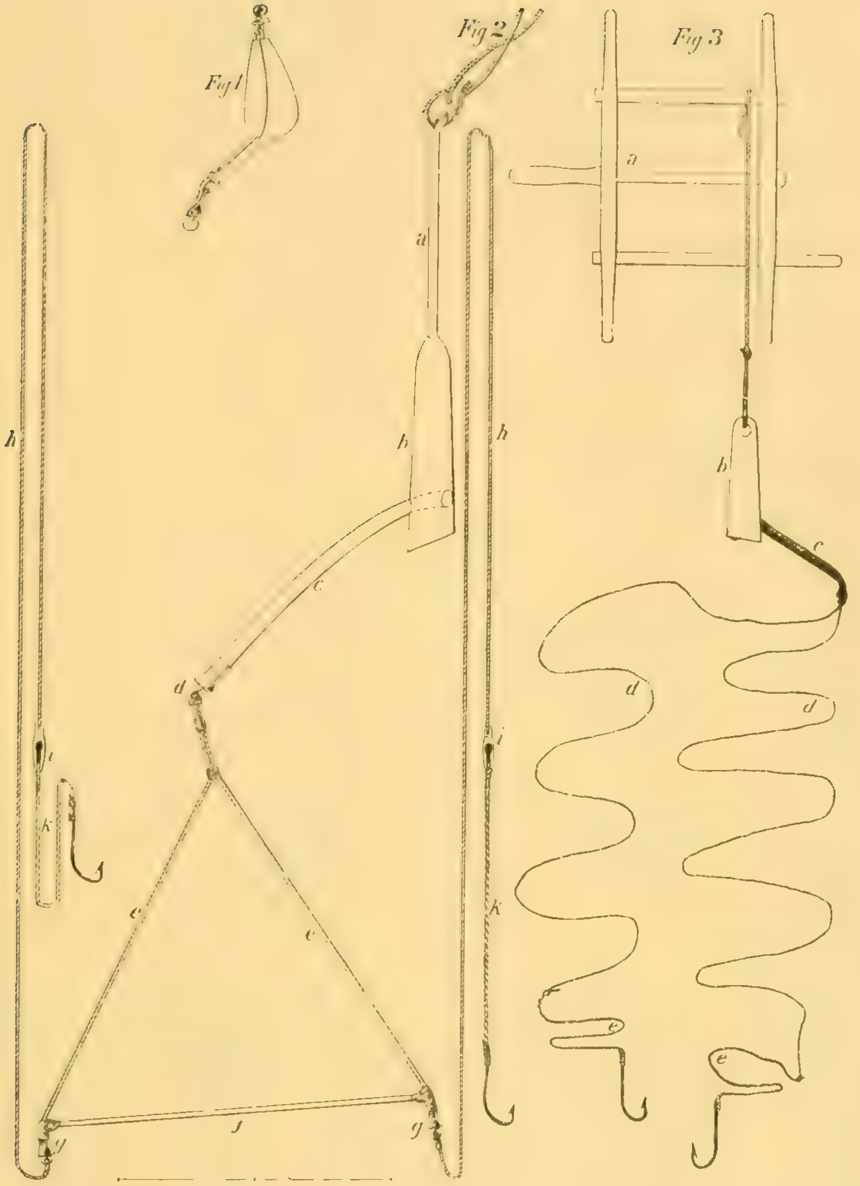
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE GEORGE'S BANK COD FISHERY.

Gloucester schooner at anchor on the Bank: hand line fishing: rigged without topmasts, for rough weather. (Sect. v, vol. i, pp. 192, 193.)

From painting by Paul E. Collins.



THE HAND-LINE COD FISHERY.

Cod hand-line gear. (Sect. v, vol. i, p. 192.)

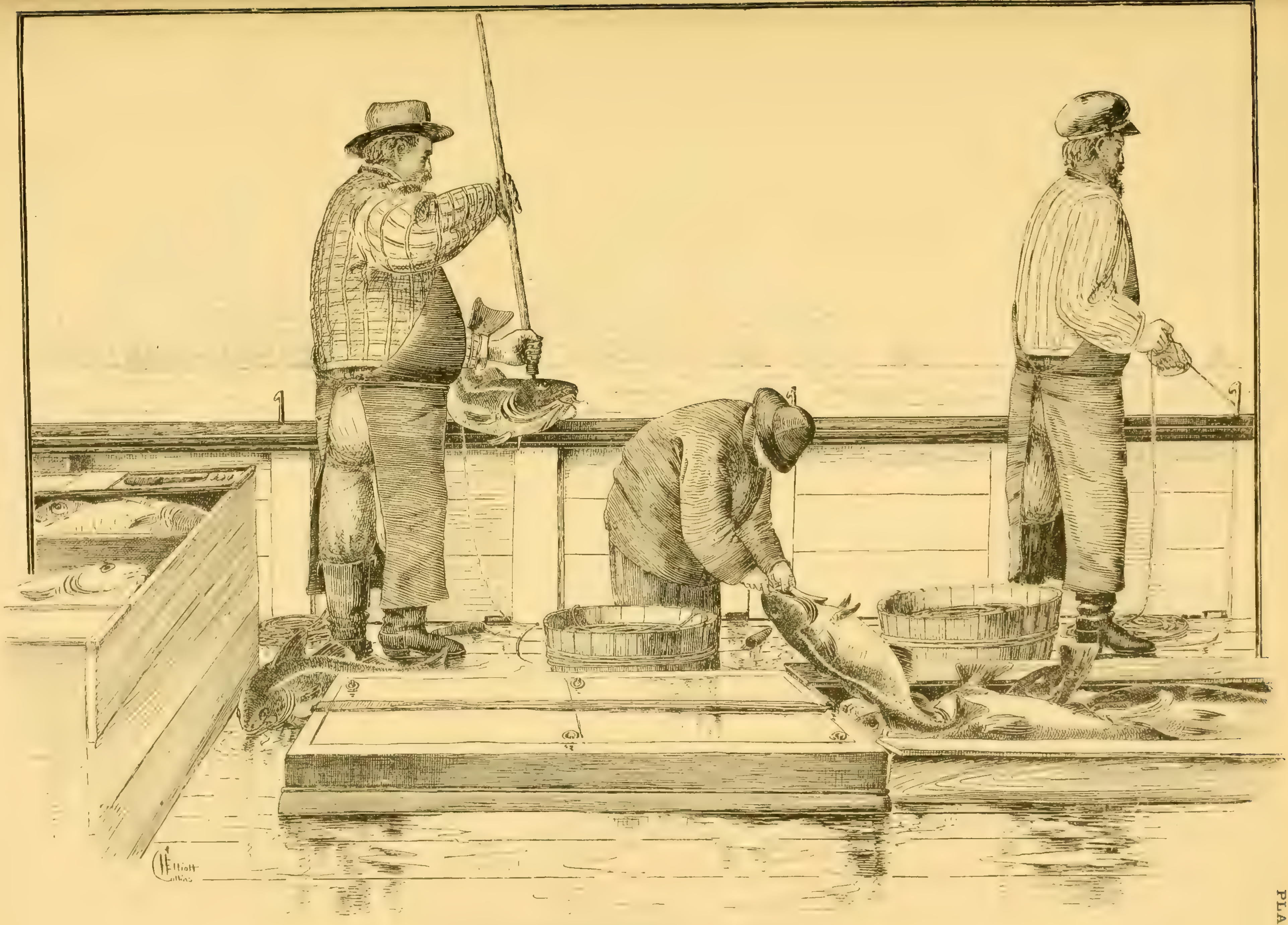
Fig. 1. Lead sinker of the "Sow-bug" type, with brass horse and swivels.

Fig. 2. George's hand-line gear: *a*, tail; *b*, lead; *c*, wooden horse; *d*, swivel; *e*, bridle; *f*, iron spreader or sling-ding; *g*, snood swivel; *h*, snood; *i*, hook slot-swivel; *k*, ganging.

Fig. 3. Hand-line gear for shoal water as formerly rigged, without spreader or swivels: *a*, reel; *b*, lead; *c*, rope horse; *d*, snood; *e*, ganging.

Drawings by Capt. J. W. Collins.

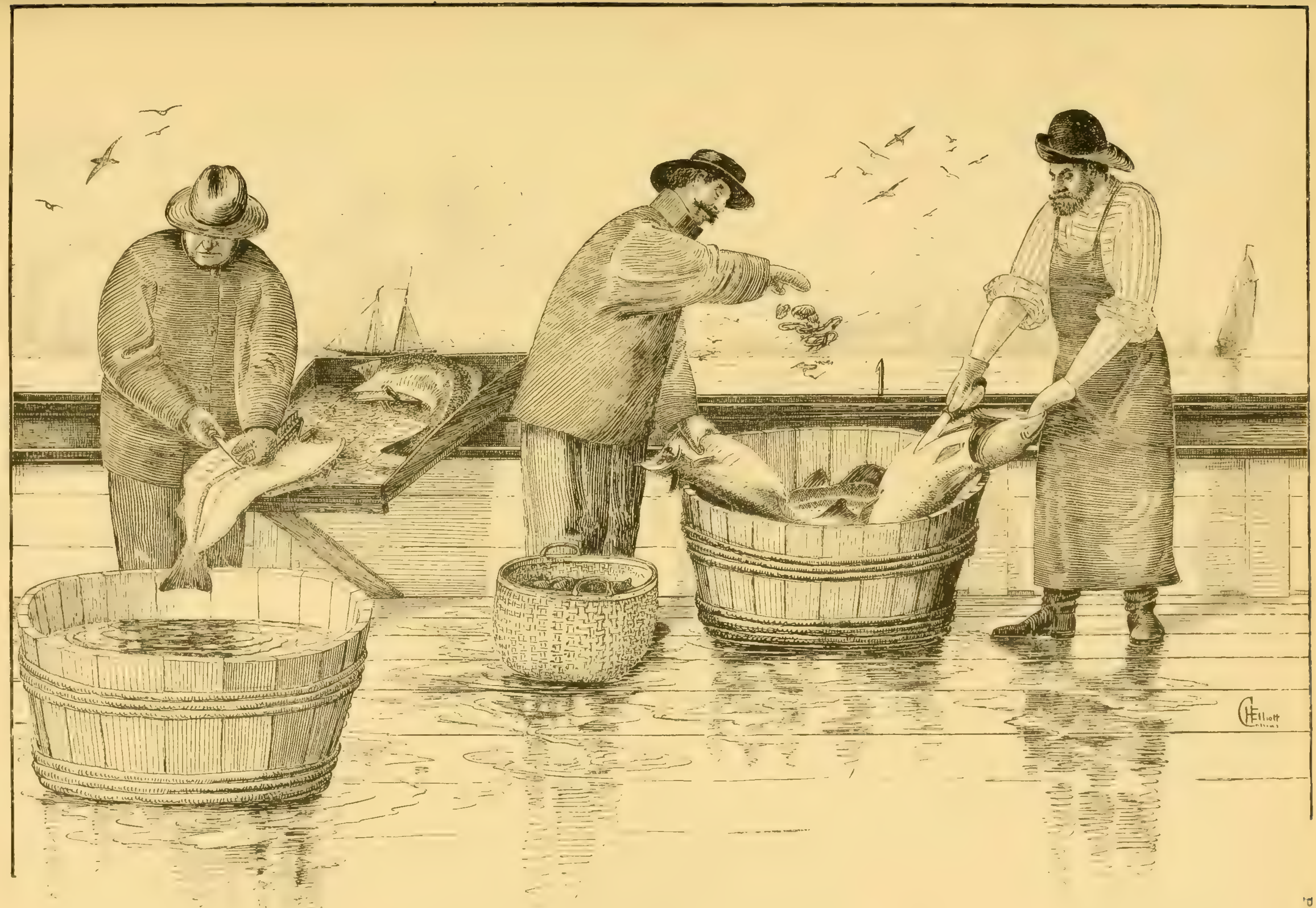
PLATE 32.



THE GEORGE'S BANK COD FISHERY.

George's crew hand-line fishing; gaffing fish over the rail; cutting out tongues. (Sect. v, vol. i, p. 194.)

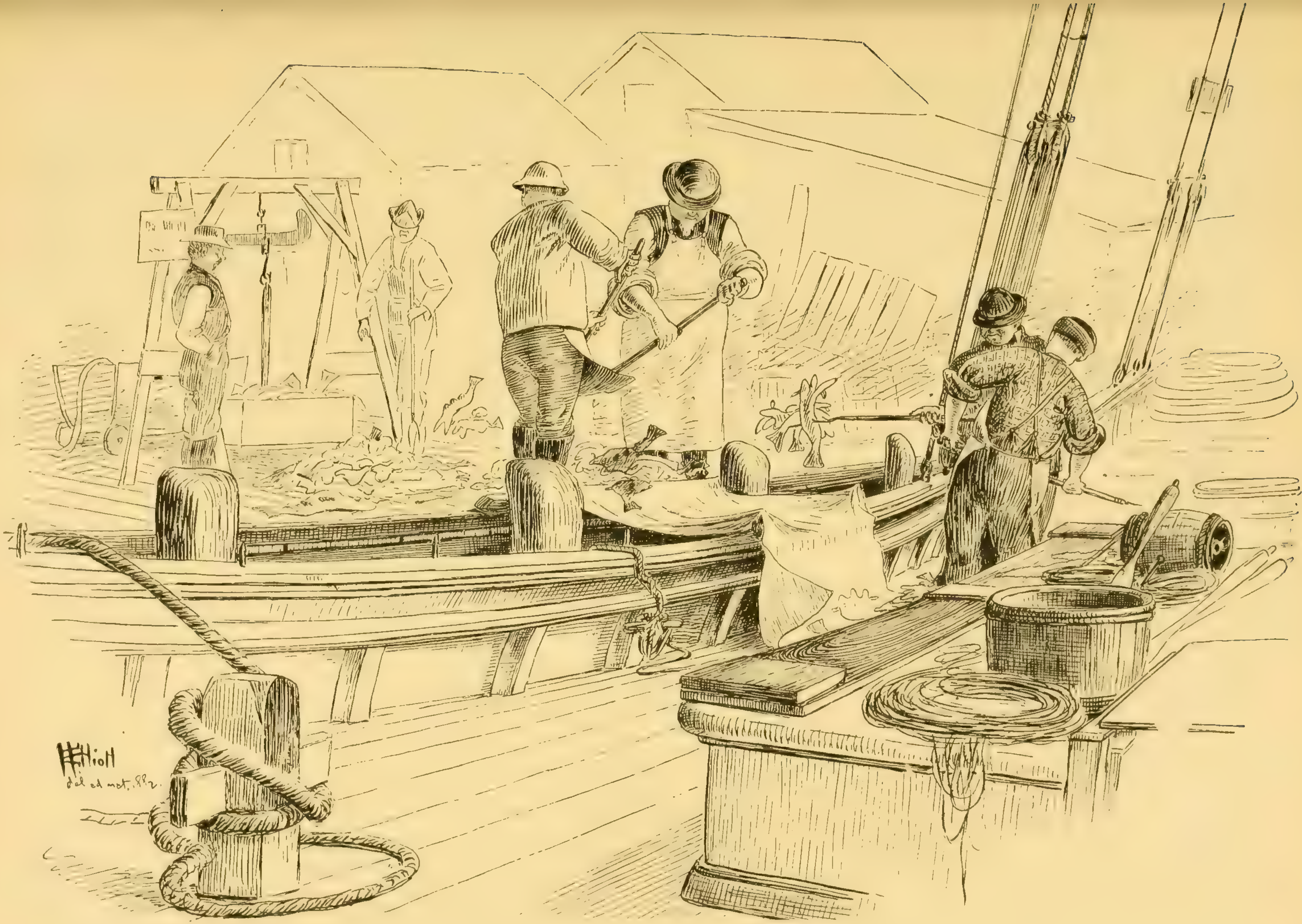
Drawing by H. W. Elliott and Capt. J. W. Collins



THE GEORGE'S BANK COD FISHERY.

Dressing cod on deck of fishing schooner. (Sect. v, vol. i, pp. 156, 180, 195.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

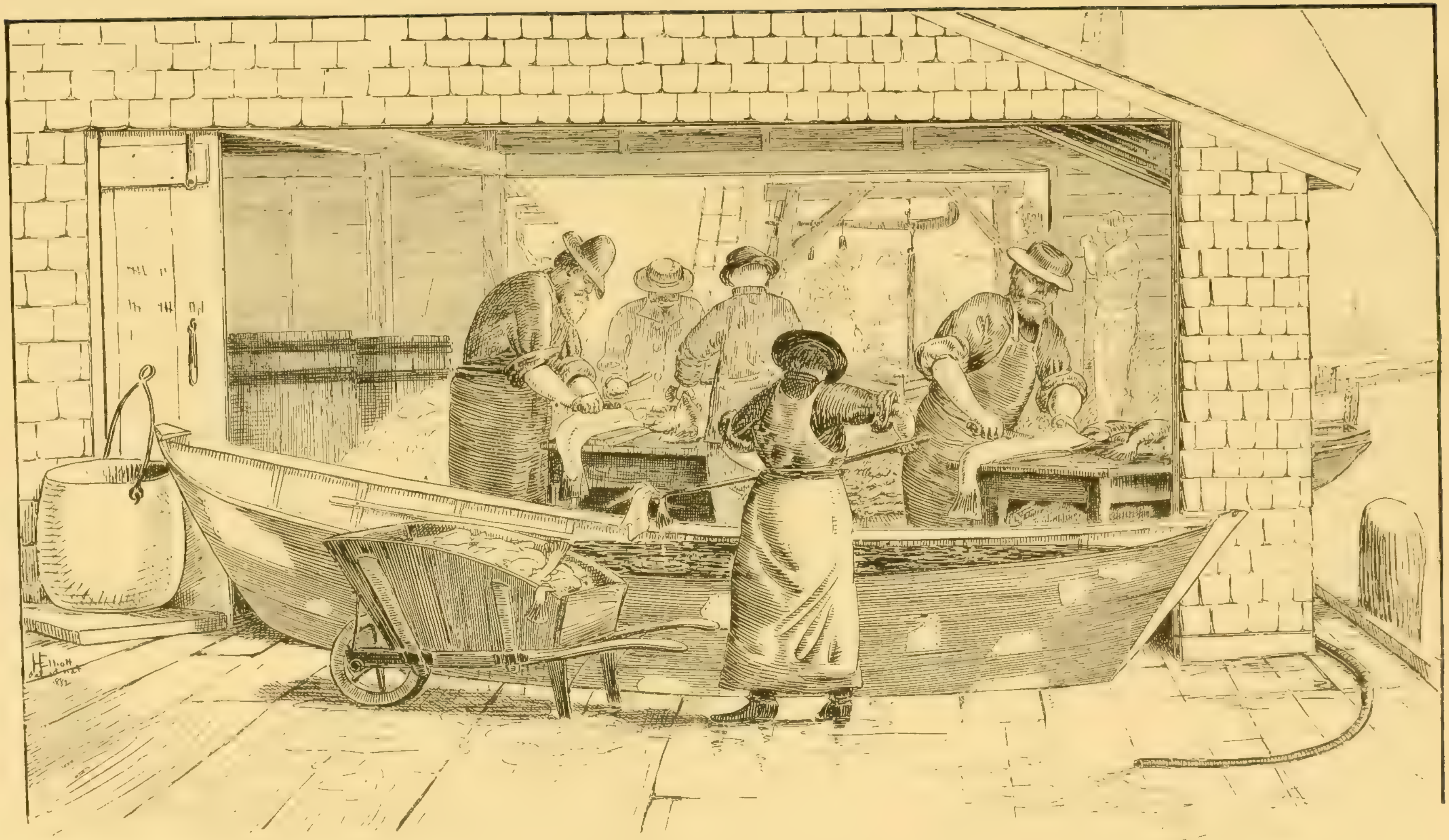


THE GEORGE'S BANK COD FISHERY.

Discharging fare of George's codfish at Gloucester, Mass. (Sect. v, vol. i, p. 195.)

Drawing by H W Elliott

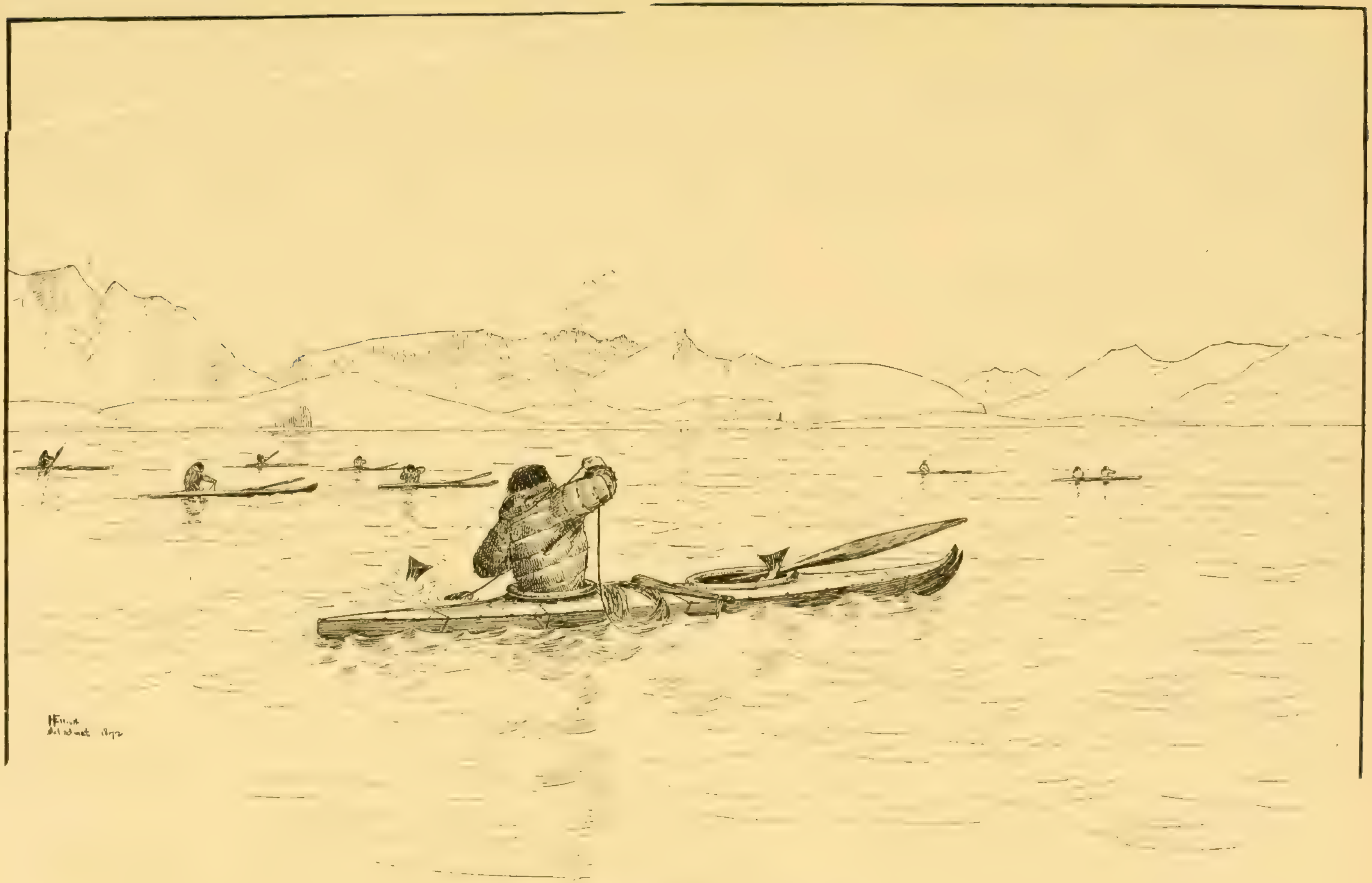
PLATE 35.



THE GEORGE'S BANK COD FISHERY.

Splitting and washing George's Bank cod at Wonson's wharf, Gloucester, Mass. (Sect. v, vol. i, p. 155.)

Drawing by H. W. Elliott

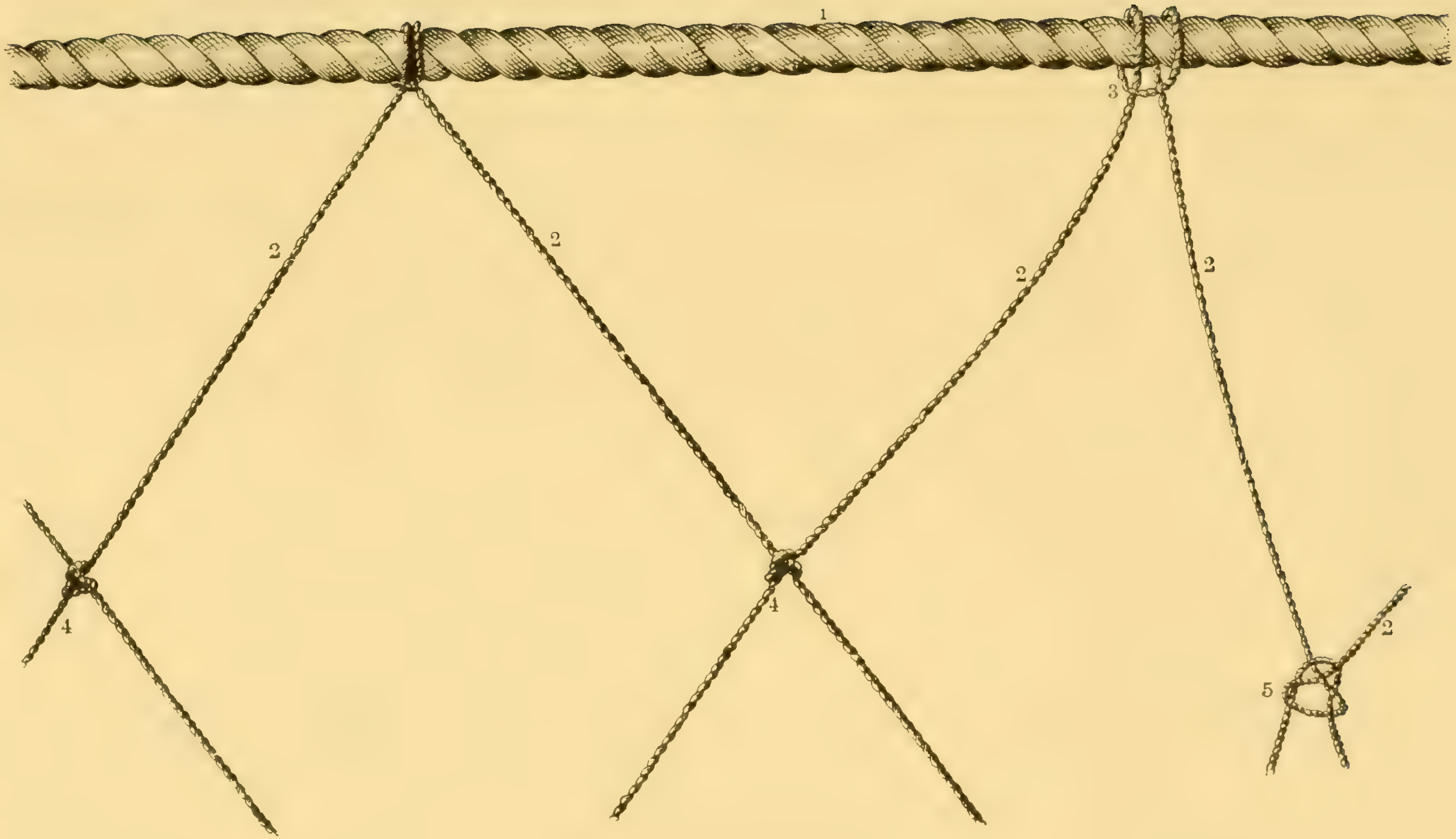


THE COD FISHERY OF ALASKA.

Aleuts in bidarkies cod-fishing with hand-lines. (Sect. v, vol. i, p. 220.)

Drawing by H. W. Elliott, 1872.

PLATE 37.



THE GILL-NET COD FISHERY.

Method of hanging cod gill-nets. (Sect. v, vol. i, pp. 227, 228.)

1. Hanging rope or line. 2, Hanging twine. 3, Clove-hitch around the rope. 4, Upper part of the net meshes. 5, Open knot, showing how it is made.

Drawing by Capt. J. W. Collins.

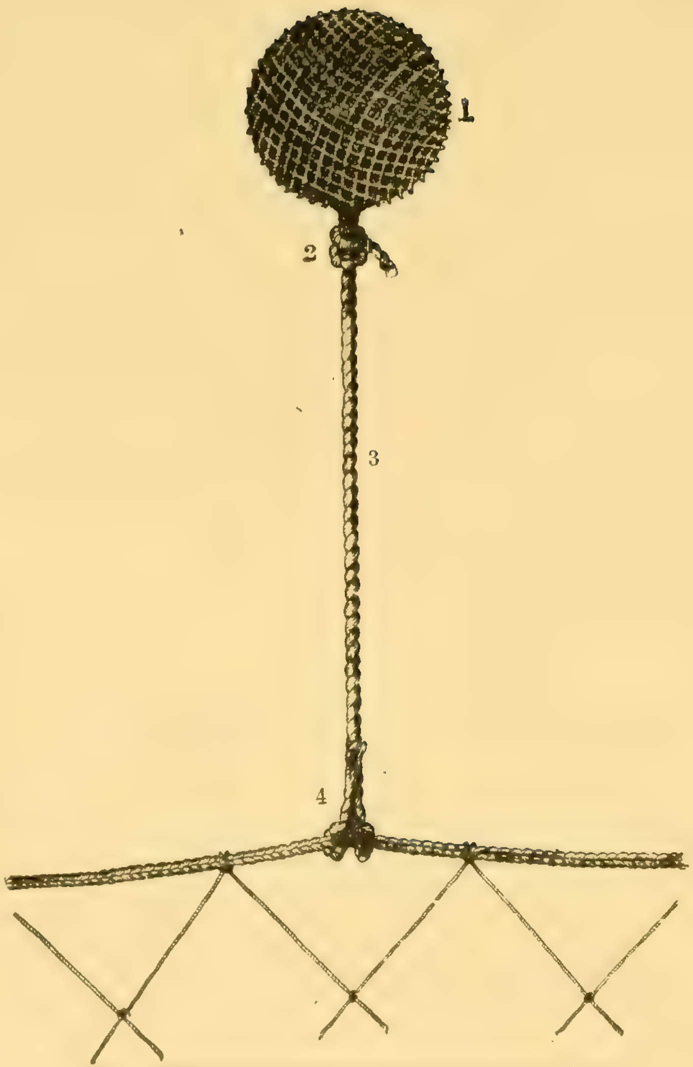


Fig. 1.—Manner in which glass floats are attached to top of nets.

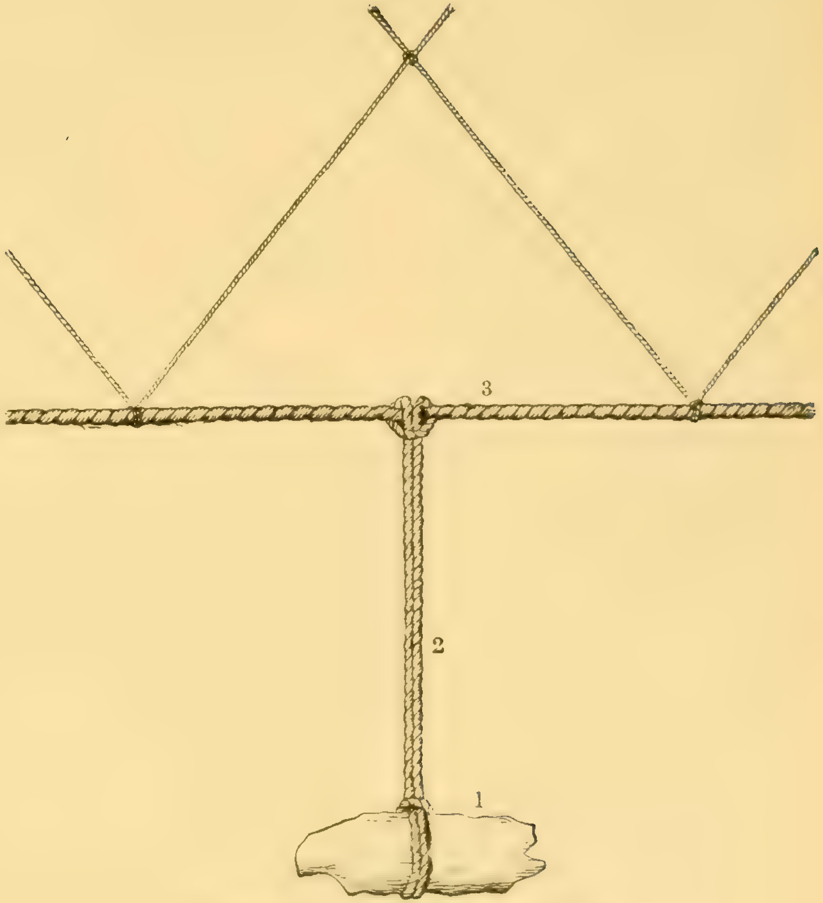
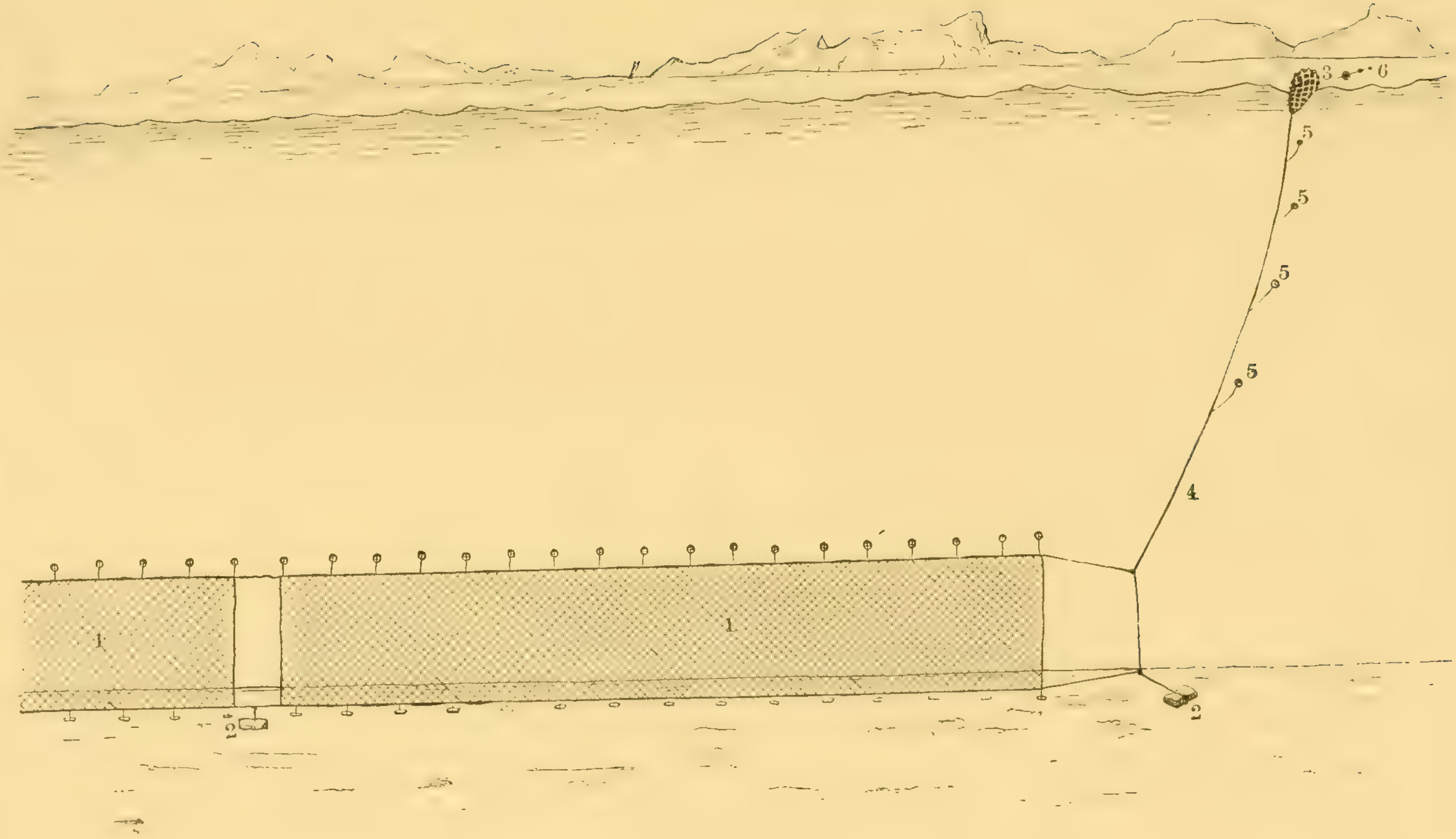


Fig. 2.—Mode of fastening sinkers to foot of nets.

THE GILL-NET COD FISHERY.

Fig. 1. 1, Glass float. 2, Eye of the float-covering. 3, Small rope holding the float to the net. 4, Eye-splice in rope, and mode of fastening to net. (Sect. v, vol. i, p. 228.)
Fig. 2. 1, Sinker-stone. 2, Double line holding the sinker. 3, Foot of the net. (Sect. v, vol. i, p. 228.)

Drawings by Capt. J. W. Collins

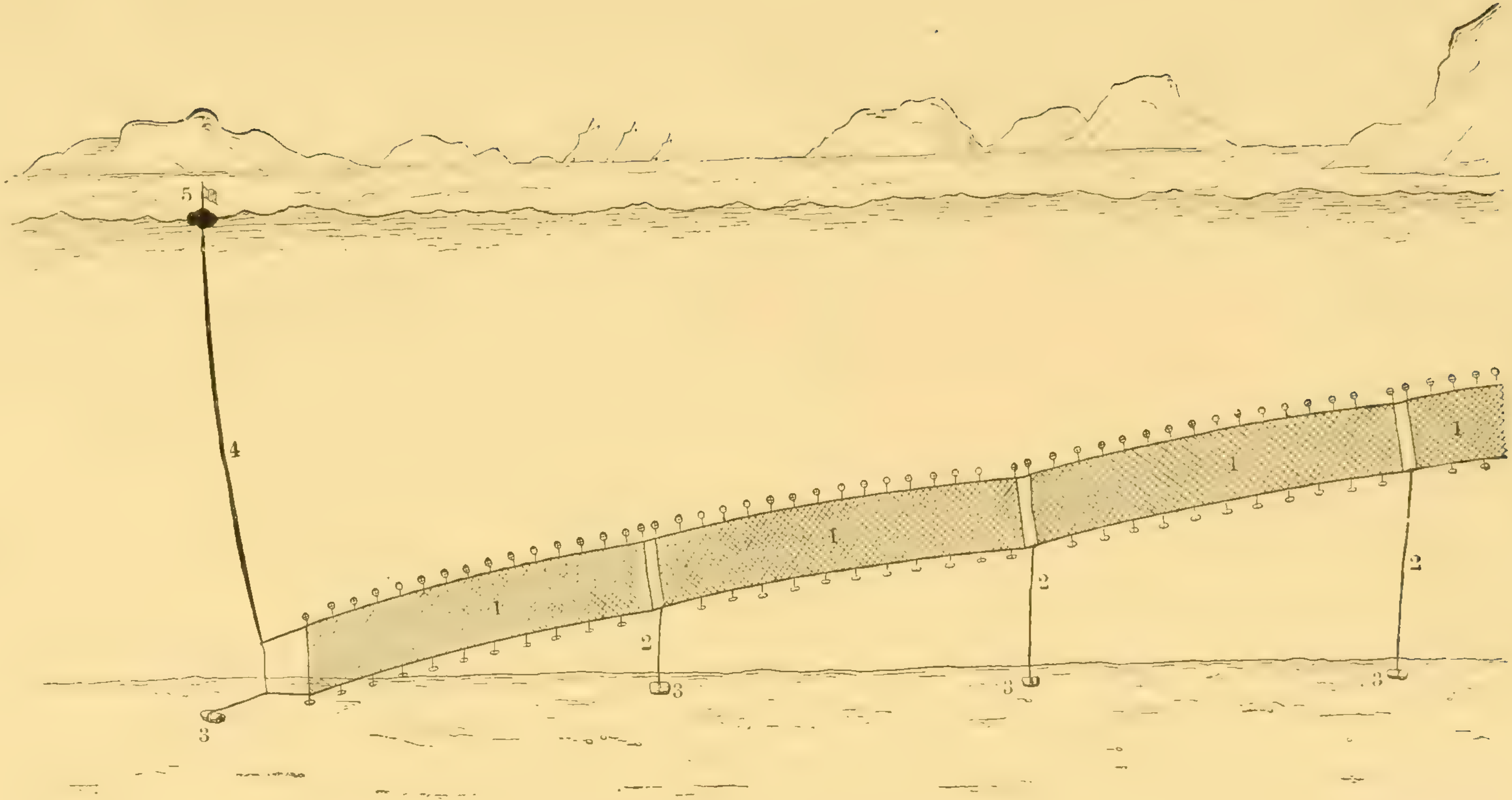


THE GILL-NET COD FISHERY.

Norwegian method of setting the nets at the bottom. (Sect. v. vol. i. p. 228.)

1, Nets. 2, Large stones used for moorings. 3, Buoy. 4, Buoy-line. 5, Glass floats attached to buoy-line. 6, Watch-floats.

Drawing by Capt. J. W. Collins

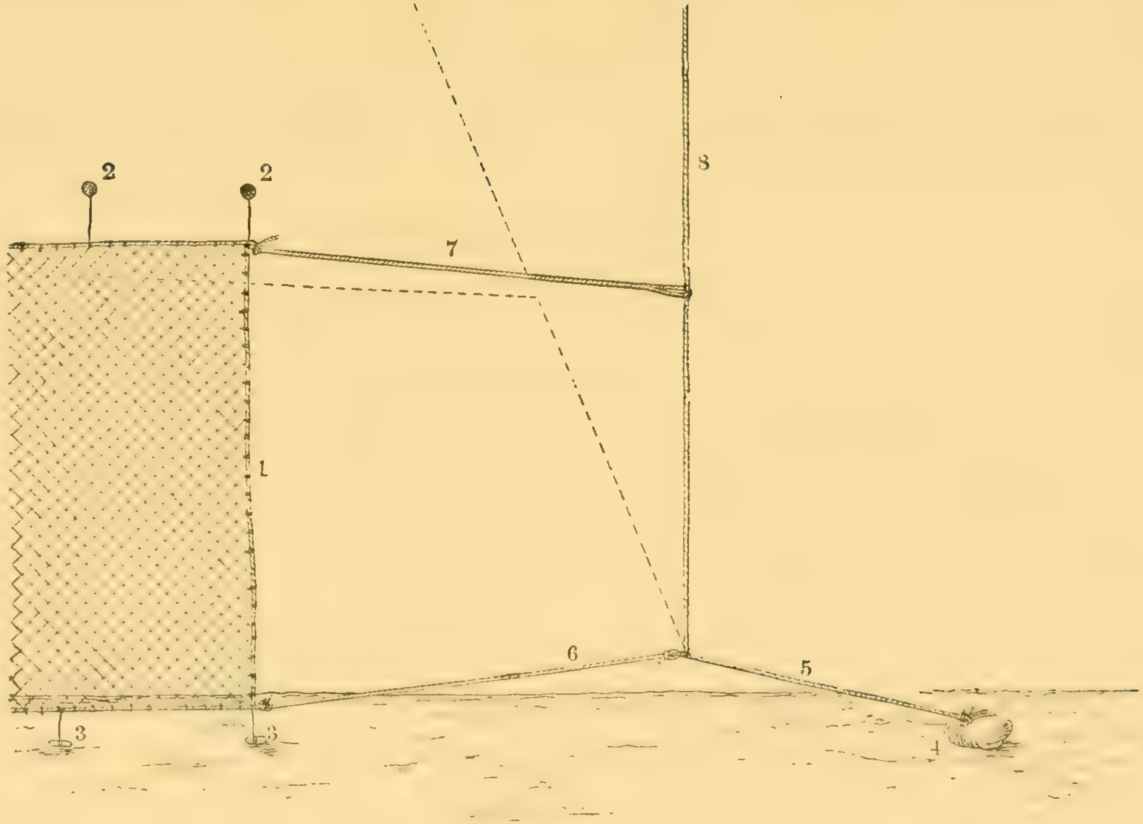


THE GILL-NET COD FISHERY.

Norwegian method of setting nets at different depths to ascertain the vertical position of the fish. (Sect. v, vol. i, p. 228.

1, Nets. 2, Foot-lines by which the nets are held to the bottom. 3, Stone moorings to the nets. 4, Buoy-line. 5, Buoy.

Drawing by Capt. J. W. Collins.

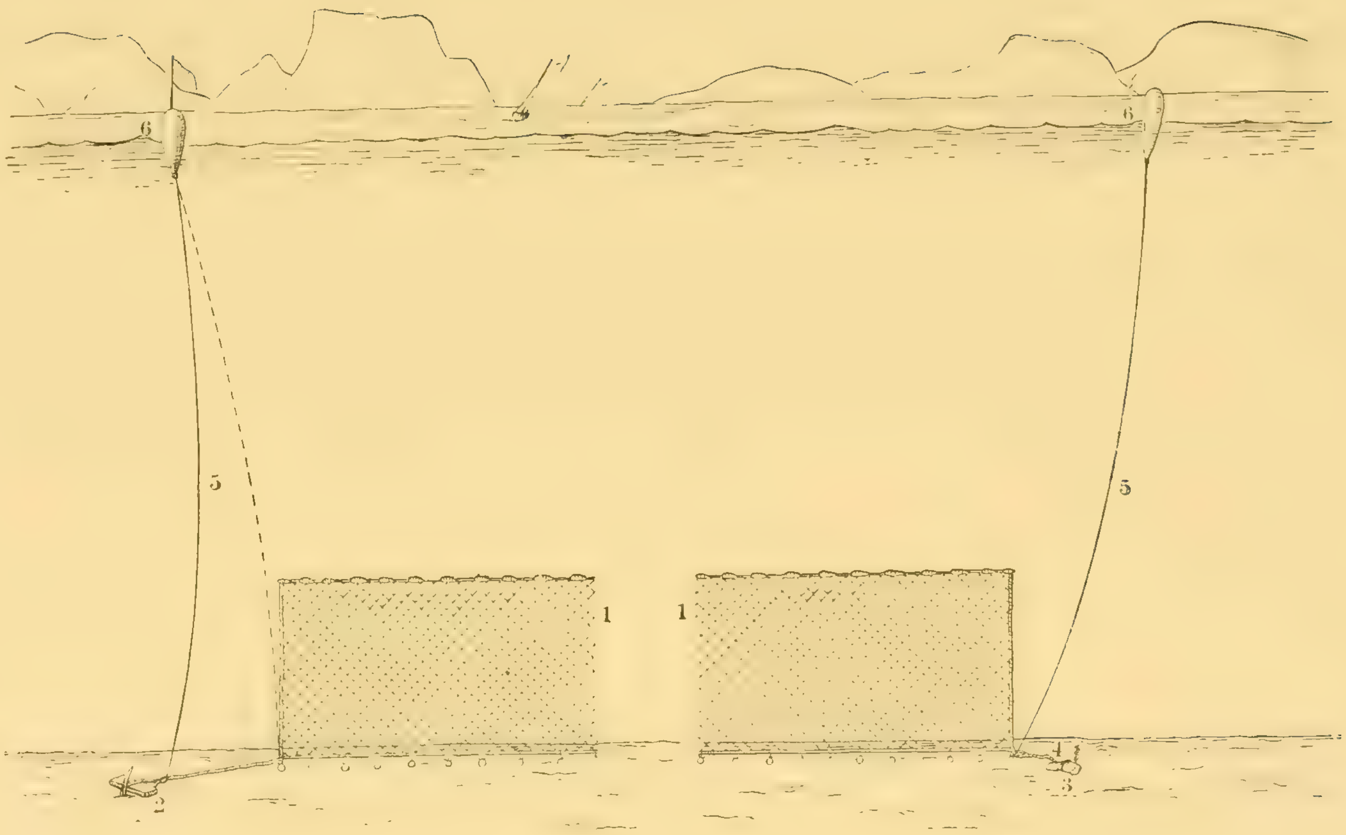


THE GILL-NET COD FISHERY.

Manner in which the ends of a gang of nets are attached to the stone anchors and buoy-line in Norway; also showing the position of the glass floats and the sinkers. (Sect. v, vol. i, p. 230.)

1, Net. 2, Glass floats. 3, Sinkers. 4, Large stone anchor or mooring. 5, Anchor-line, called foot-line by the Norwegian fishermen. 6, Short rope, one end of which is bent to the lower corner of the net and the other in an eye of the buoy-line. 7, Short rope, one end having an eye-splice in it through which the buoy-line passes, and the other end bent to the upper corner of the net. 8, Buoy-line. The dotted lines show the probable position of the end of the net, buoy-line, &c., when swept back by the current.

Drawing by Capt. J. W. Collins.

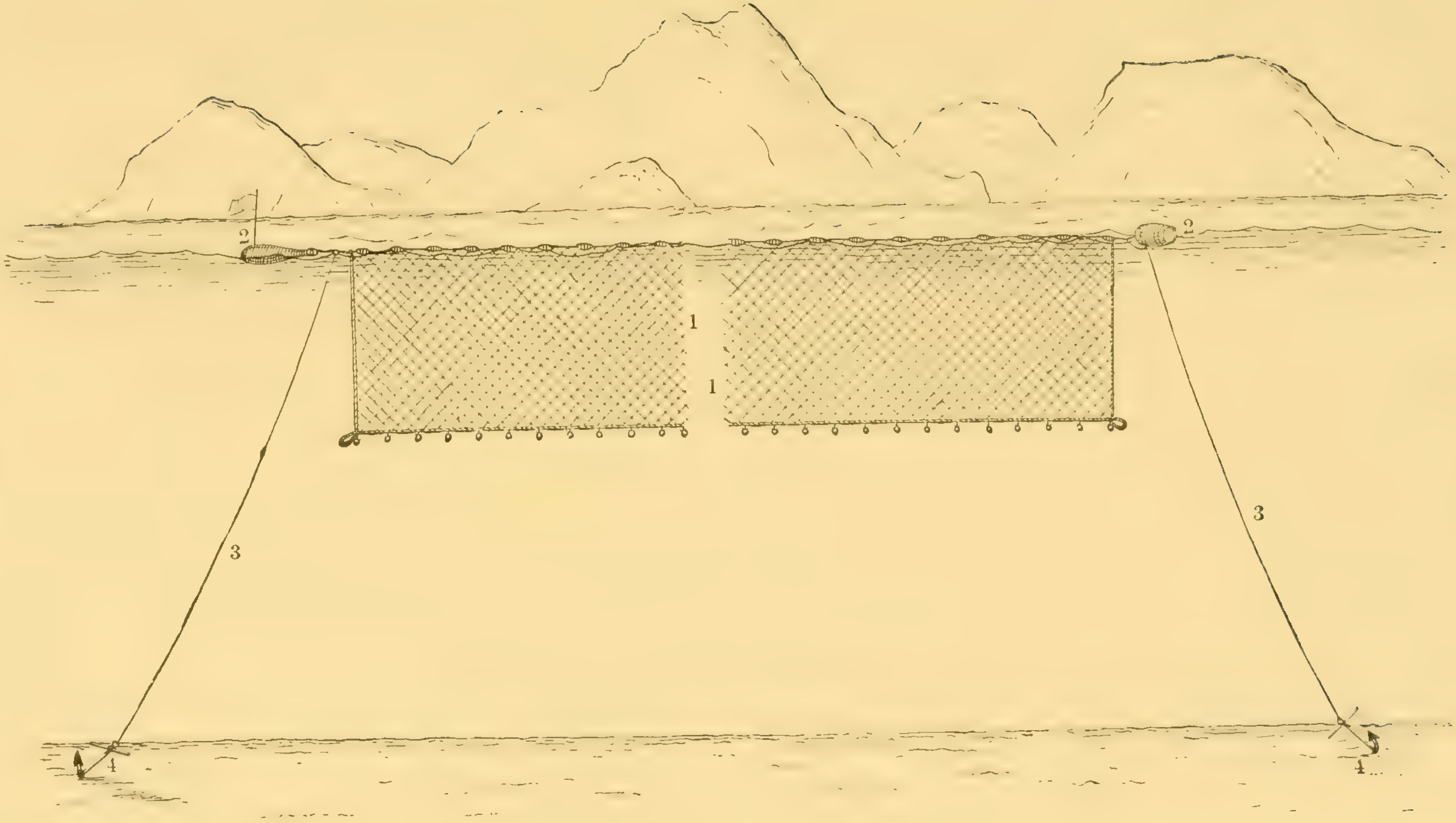


THE GILL-NET COD FISHERY.

Way in which cod gill-nets are set at the bottom on the east coast of Newfoundland. (Sect. v, vol. i, p. 230.)

1, Ends of the net or gang. 2, Stone killick, generally on the head end of the gang. 3, Stone mooring. 4, Anchor-line, one end of which is bent to lower corner of the net, and the other to the killick or stone mooring. 5, Buoy-line. These are sometimes bent to the killicks, and at other times to the lower corner of the net, as shown by the dotted line. 6, Buoys.

Drawing by Capt. J. W. Collins.

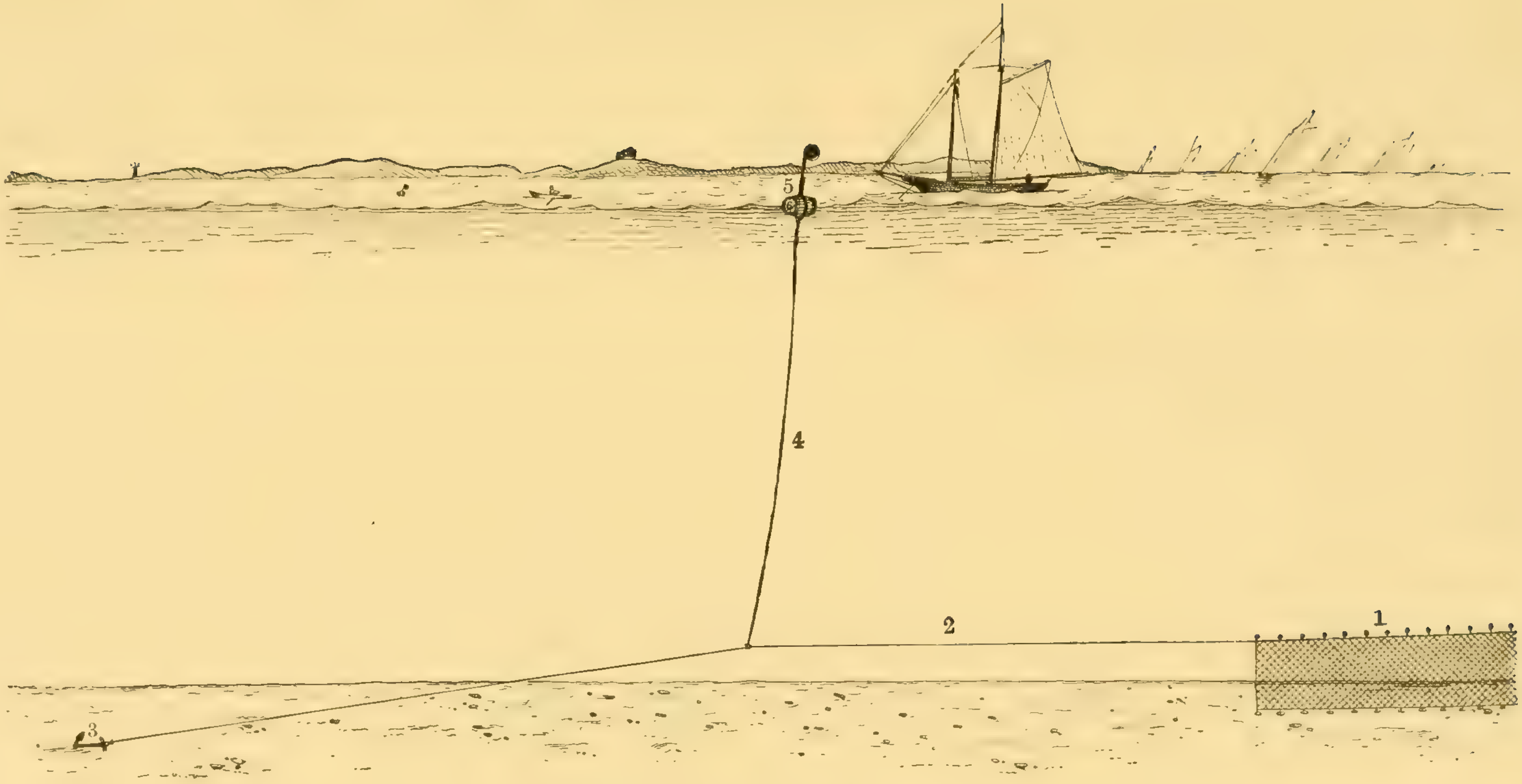


THE GILL-NET COD FISHERY.

The ordinary way in which cod gill-nets are set floating at Newfoundland. (Sect. v, vol. i, p. 230.)

1, Ends of the net or gang. 2, Buoys. 3, Anchor lines. 4. Anchors. (Iron anchors, stones, or stone killicks may be used.)

Drawing by Capt. J. W. Collins.

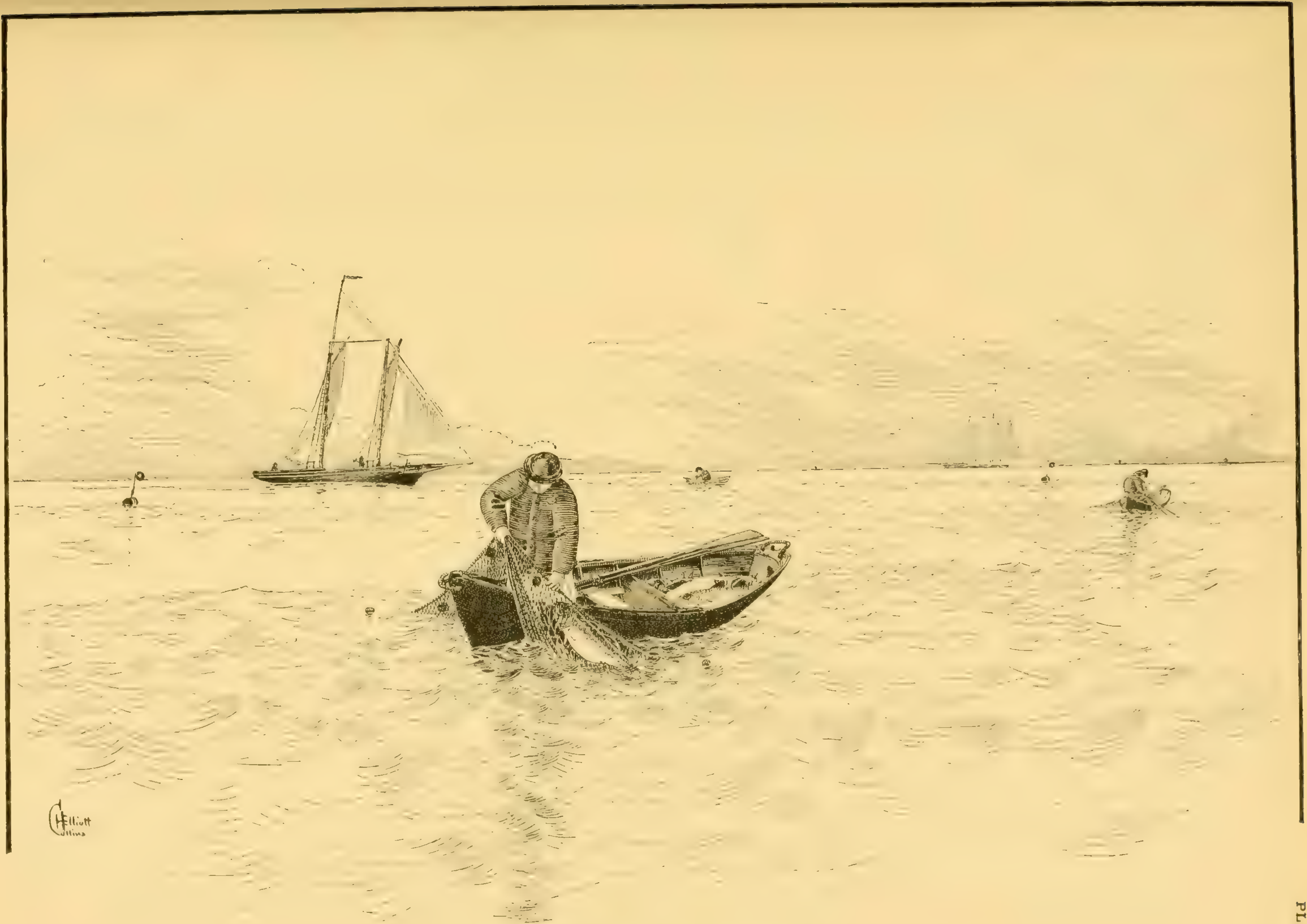


THE GILL-NET COD FISHERY.

Way in which cod gill-nets are set for underrunning in Ipswich Bay, Mass (Sect. v, vol. i, p. 232.)

1, End of the gang of nets. 2, Anchor-line, also called the "underrunning line." 3, Anchor. 4, Buoy-line. 5, Buoy.

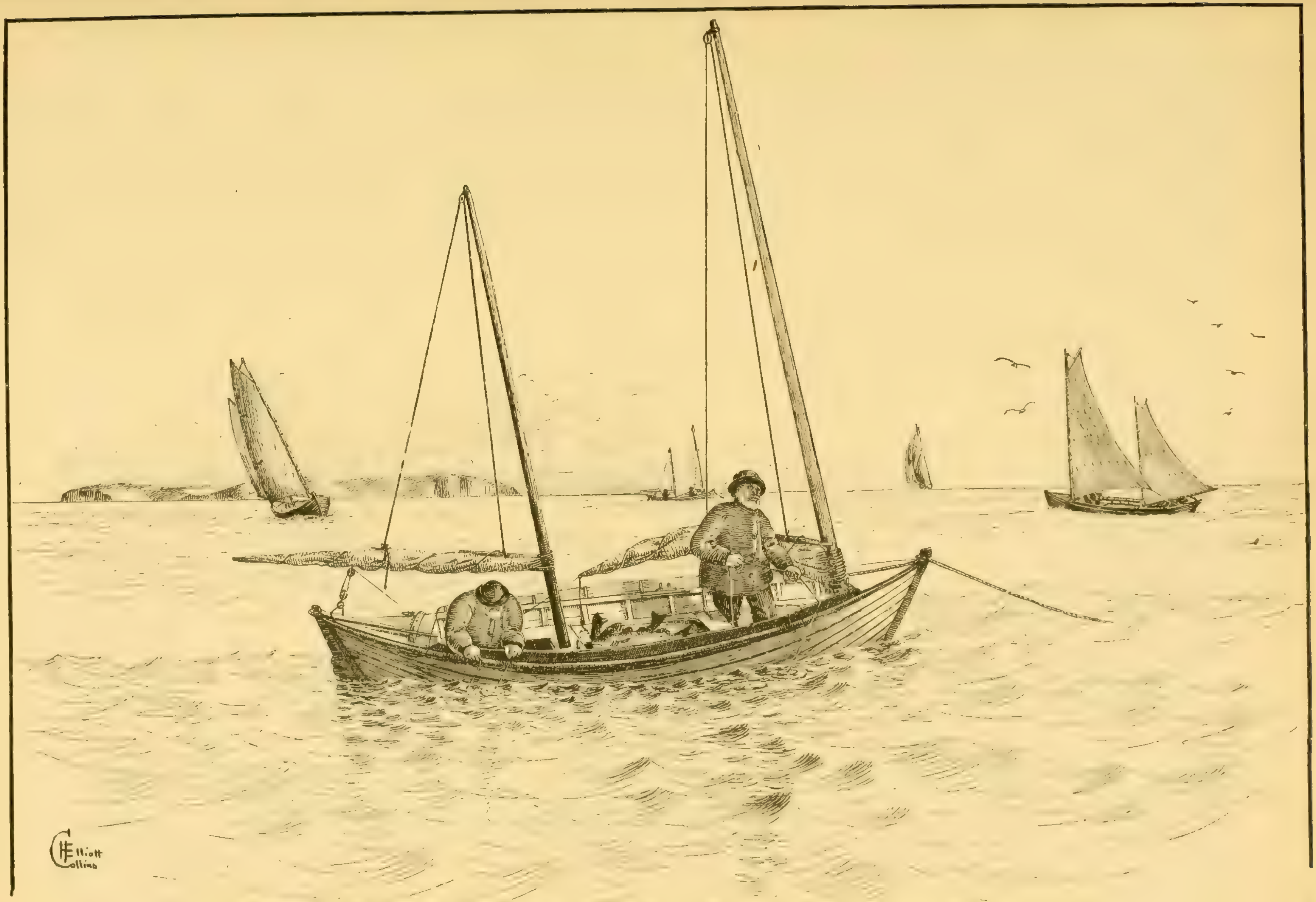
Drawing by Capt. J. W. Collins.



THE GILL-NET COD FISHERY.

Underrunning cod gill-nets in Ipswich Bay, Mass. (Sect. v, vol. i, p. 232.)

Drawing by H. W. Elliott and Capt. J. W. Collins.



THE SHORE COD FISHERY.

Block Island boat and crew hand-lining for cod. (Sect. v, vol. i.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

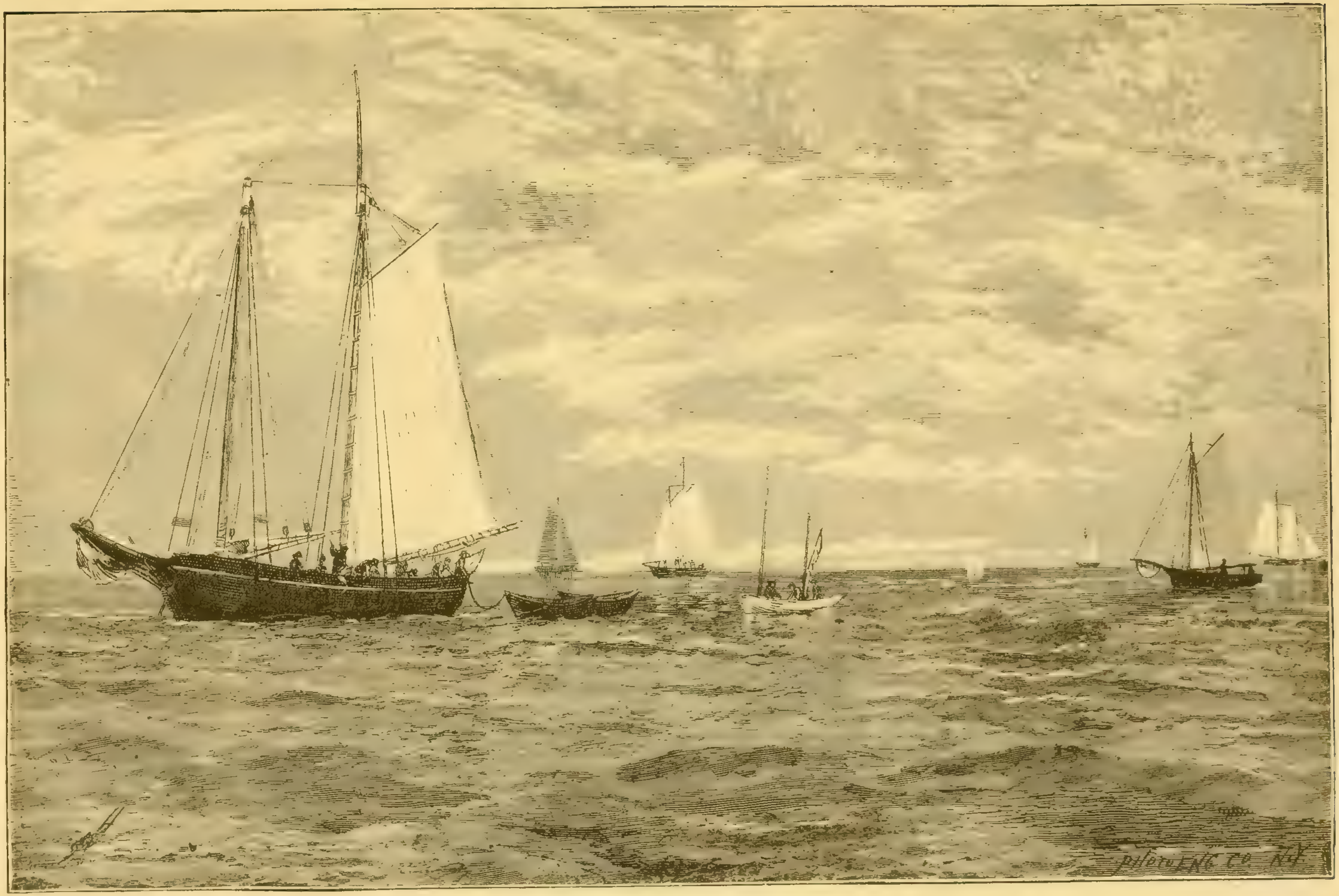
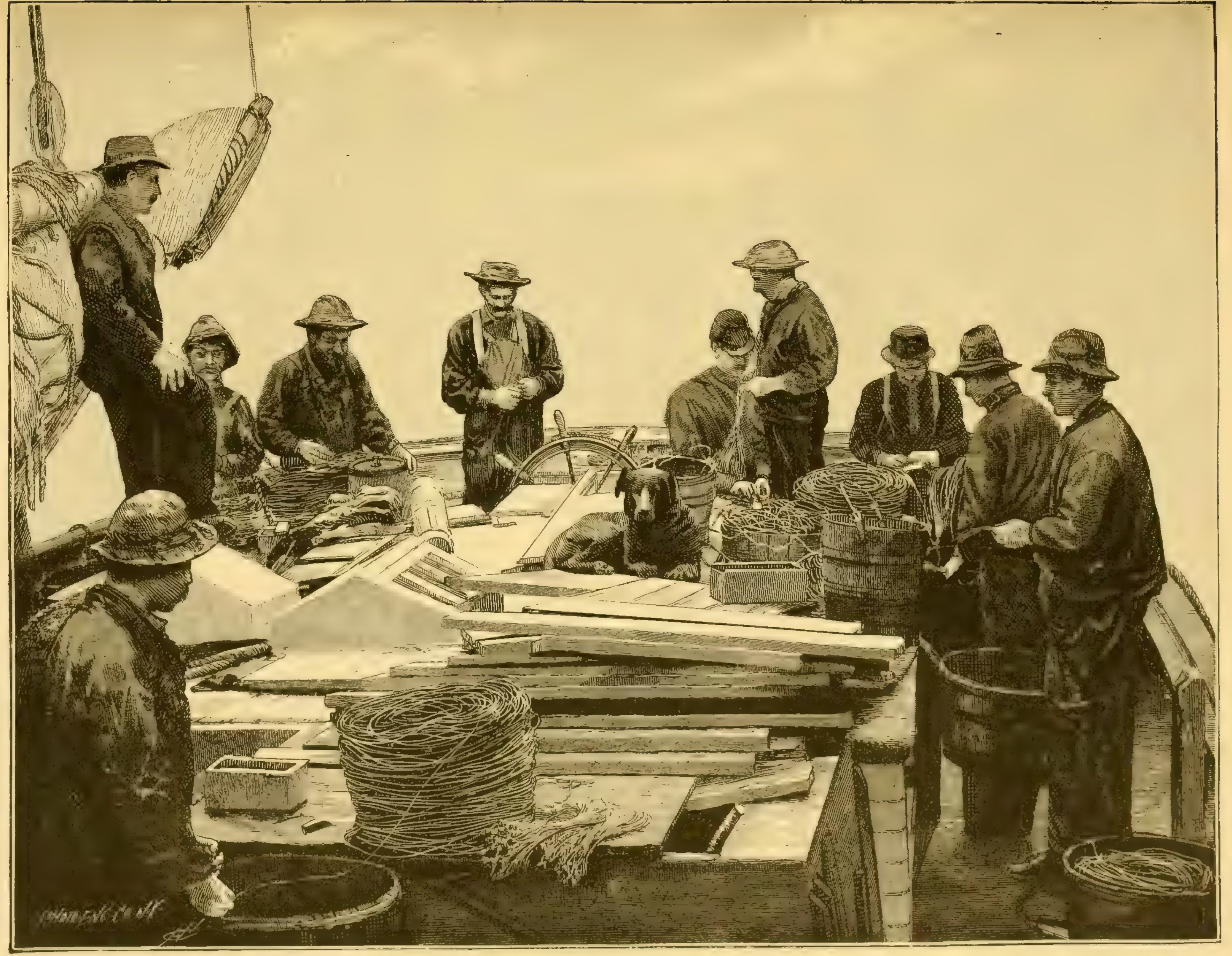


PHOTO ENG. CO. N.Y.

THE SHORE COD FISHERY.

Pink-stern schooner and boats hand-line fishing off Cape Ann, Mass. (Sect. v, vol. i.)

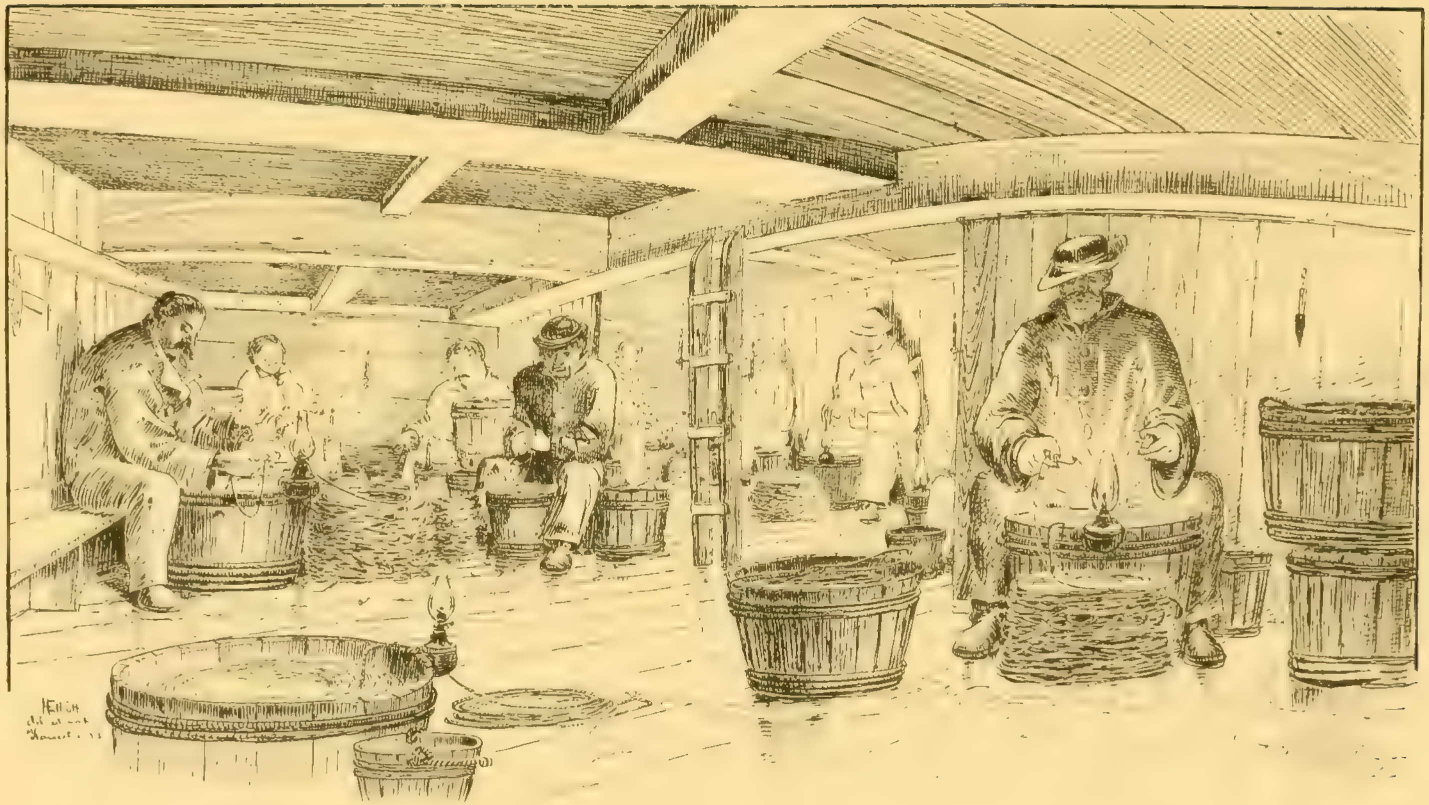
From a photograph by T. W. Smillie.



THE HADDOCK FISHERY.

Baiting trawls on deck of Gloucester haddock schooner Mystic. (Sect. v, vol. i, p. 237.)

From a photograph by T. W. Smillie.

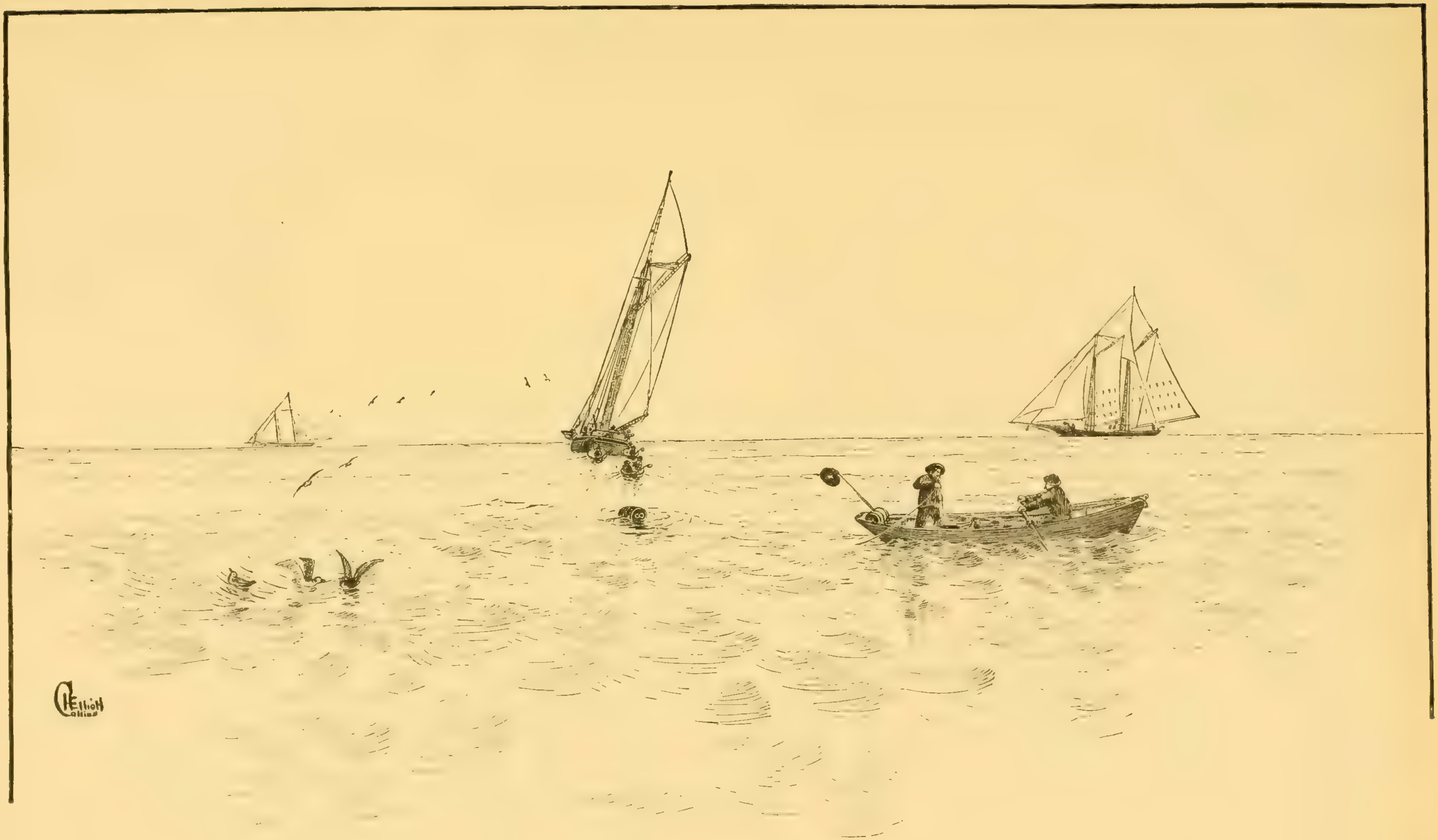


THE HADDOCK FISHERY.

Baiting trawls at night in hold of haddock schooner. (Sect. v, vol. 1, p. 237.)

Drawing by H. W. Elliott.

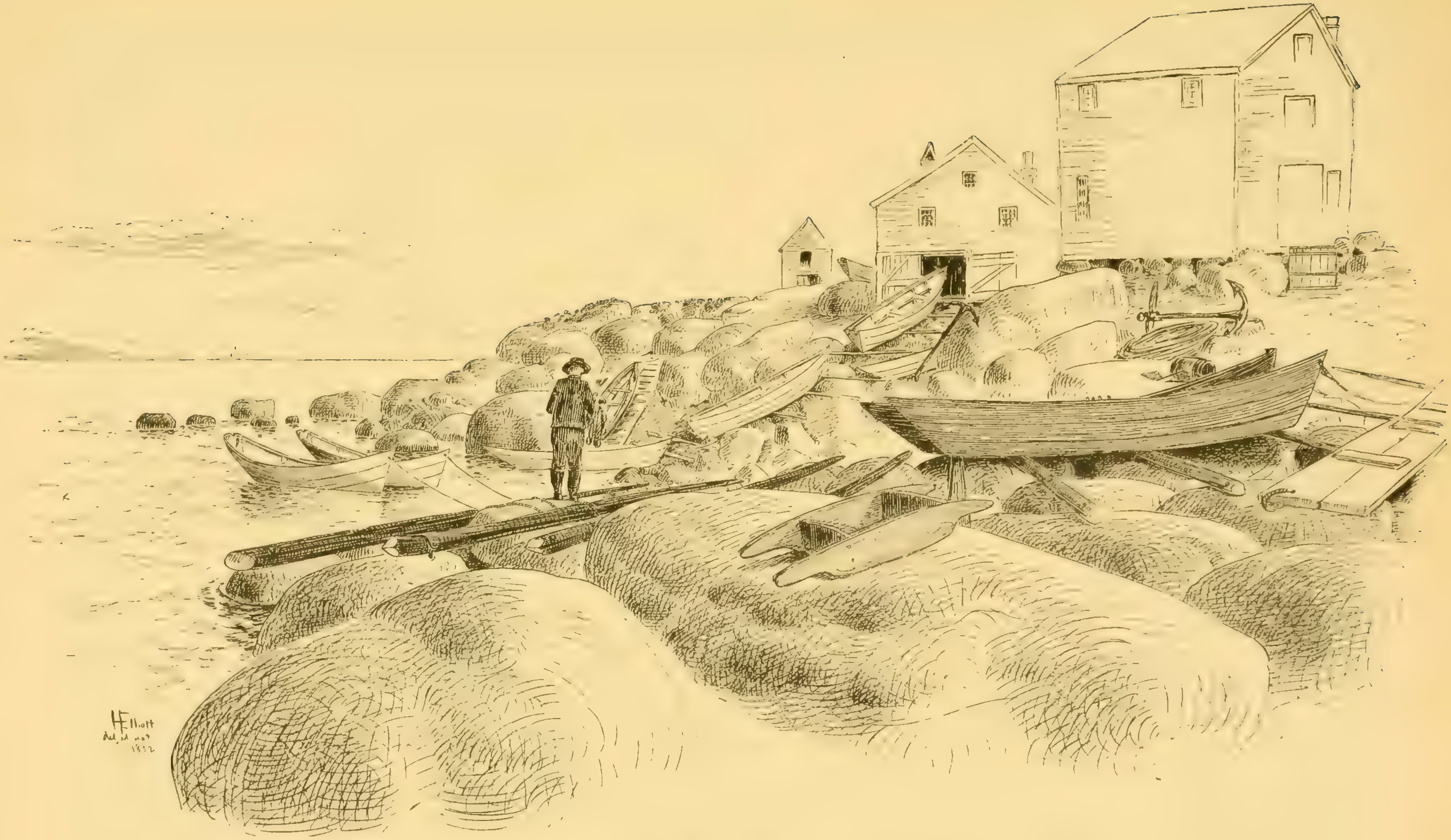
PLATE 50.



THE HADDOCK FISHERY.

Setting haddock trawls from schooner under sail; set at right angles to course of the vessel. (Sect. v, vol. i, p. 237.)

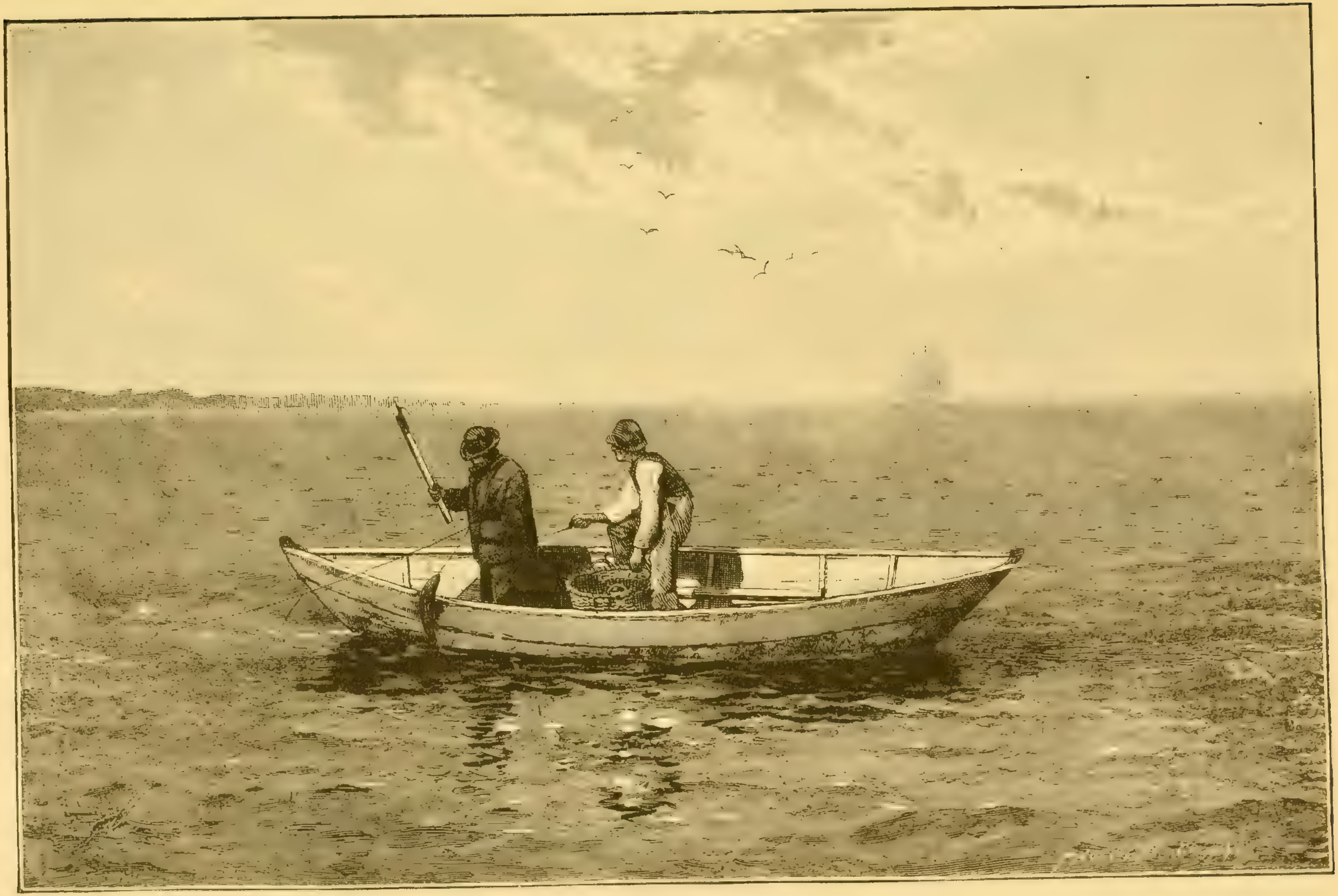
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE HAKE FISHERY.

Fishermen's dories on the rocks at Folly Cove, Cape Ann, Mass. (Sect. v, vol. i, p. 241.)

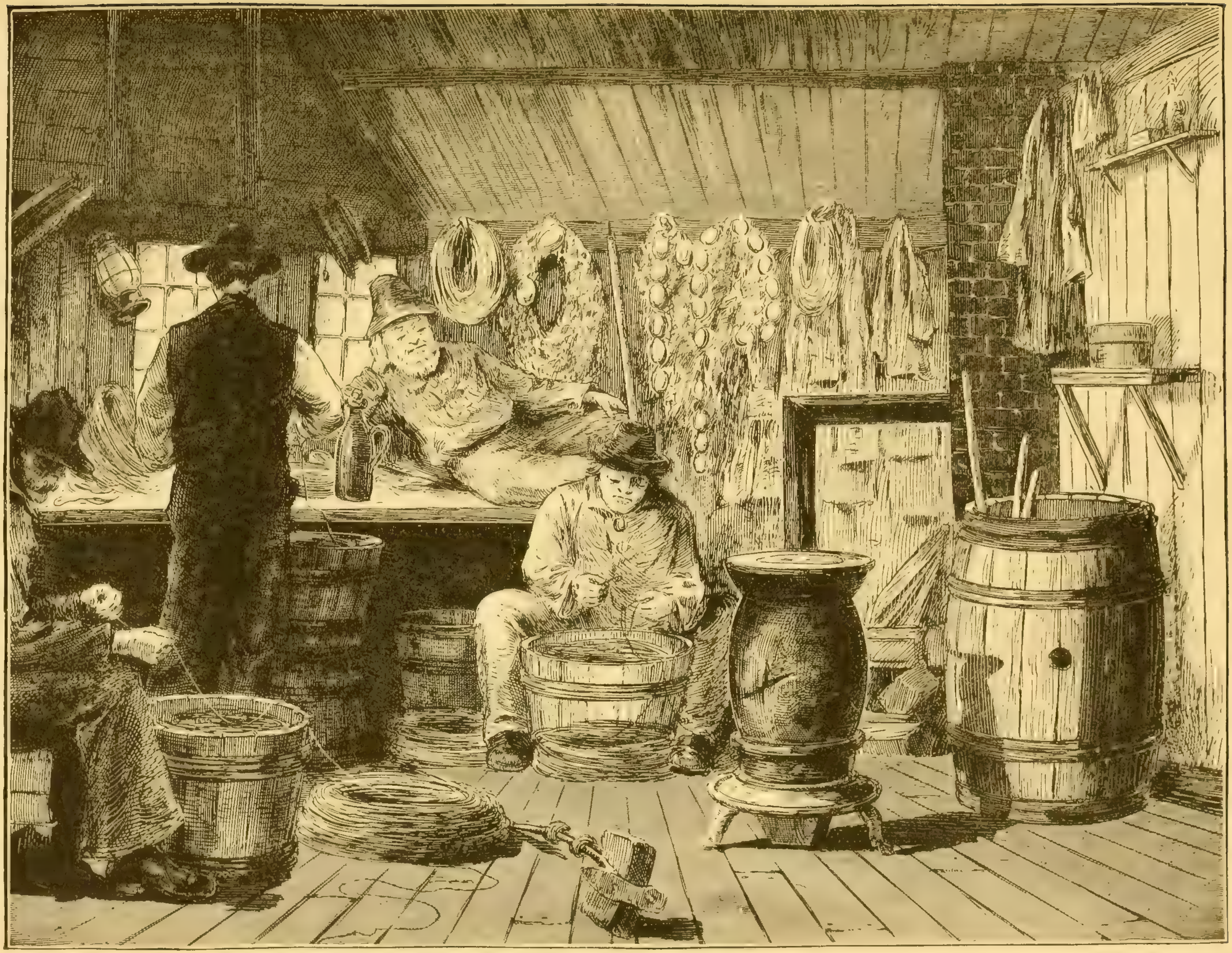
Drawing by H. W. Elliott.



THE HAKE FISHERY.

Fishermen in dory hauling the trawl; a dogfish caught. (Sect. v, vol. i, p. 242.)

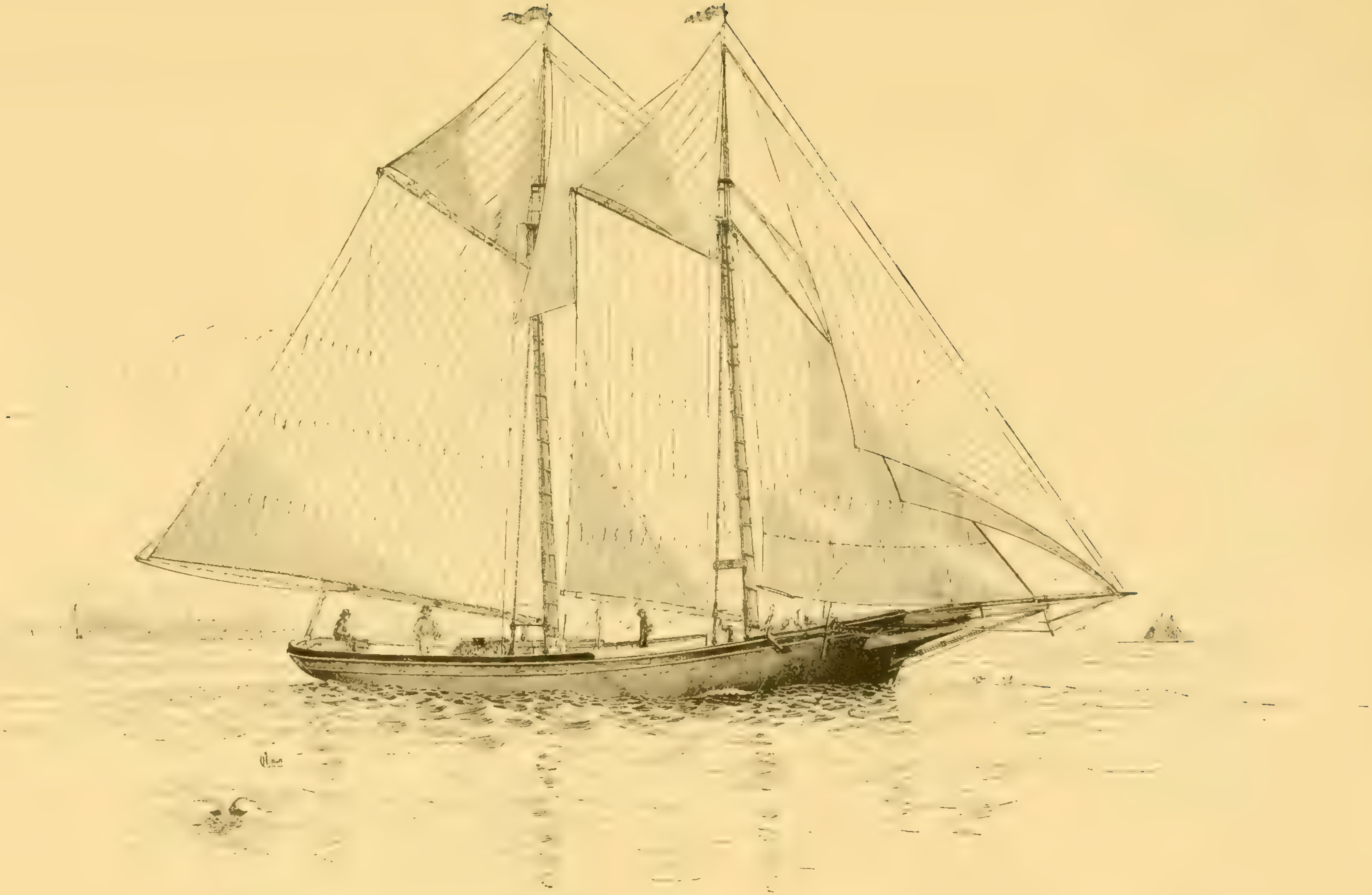
From a photograph by T. W. Smillie.



THE HAKE FISHERY.

Overhauling the trawls in fish-house at Rockport, Mass. (Sect. v, vol. i, p. 242.)

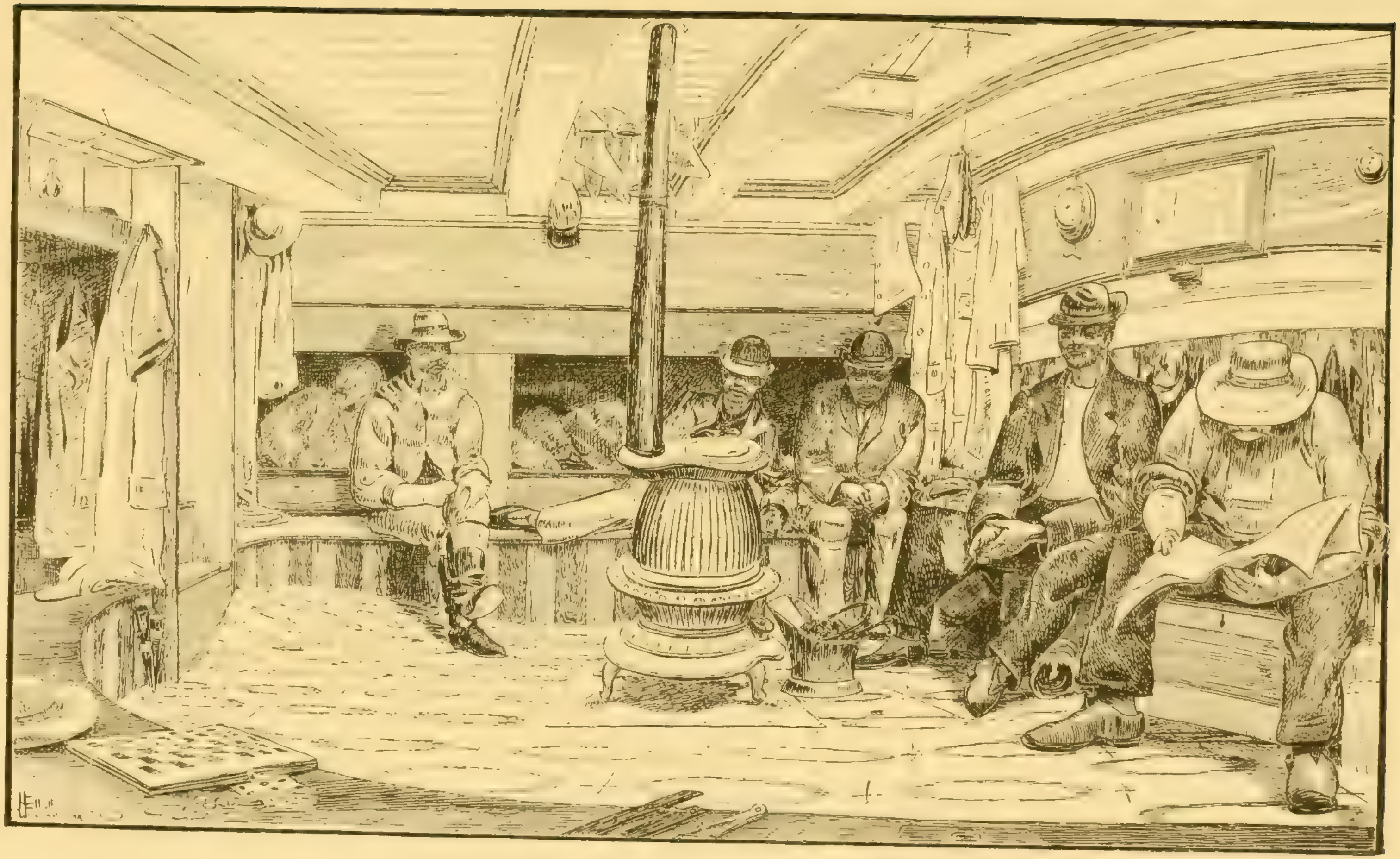
Drawing by H. W. Elliott.



THE MACKEREL PURSE-SEINE FISHERY.

Mackerel schooner under full sail, bound out. (Sect. v, vol. i, p. 248.)

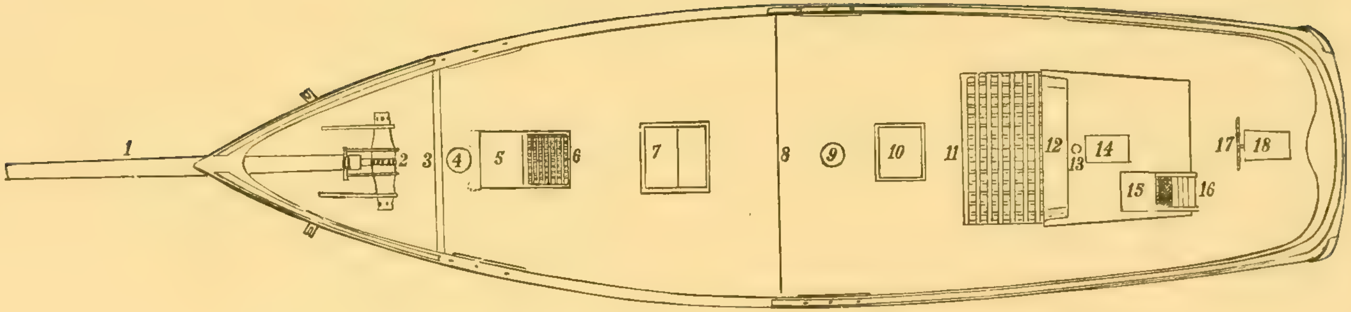
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL PURSE-SEINE FISHERY.

The cabin of mackerel schooner John D. Long, of Gloucester, Mass. (Sect. v, vol. I, p. 247.)

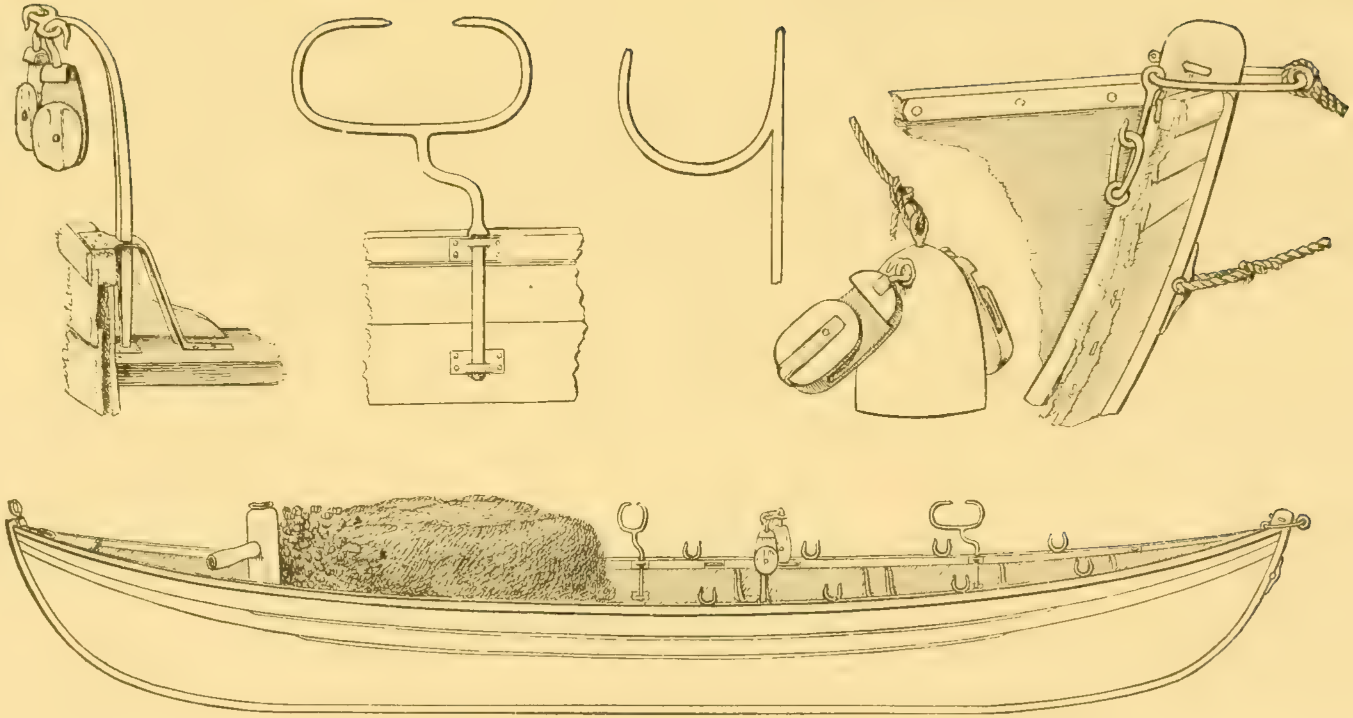
Drawing by H. W. Elliott.



THE MACKEREL PURSE-SEINE FISHERY.

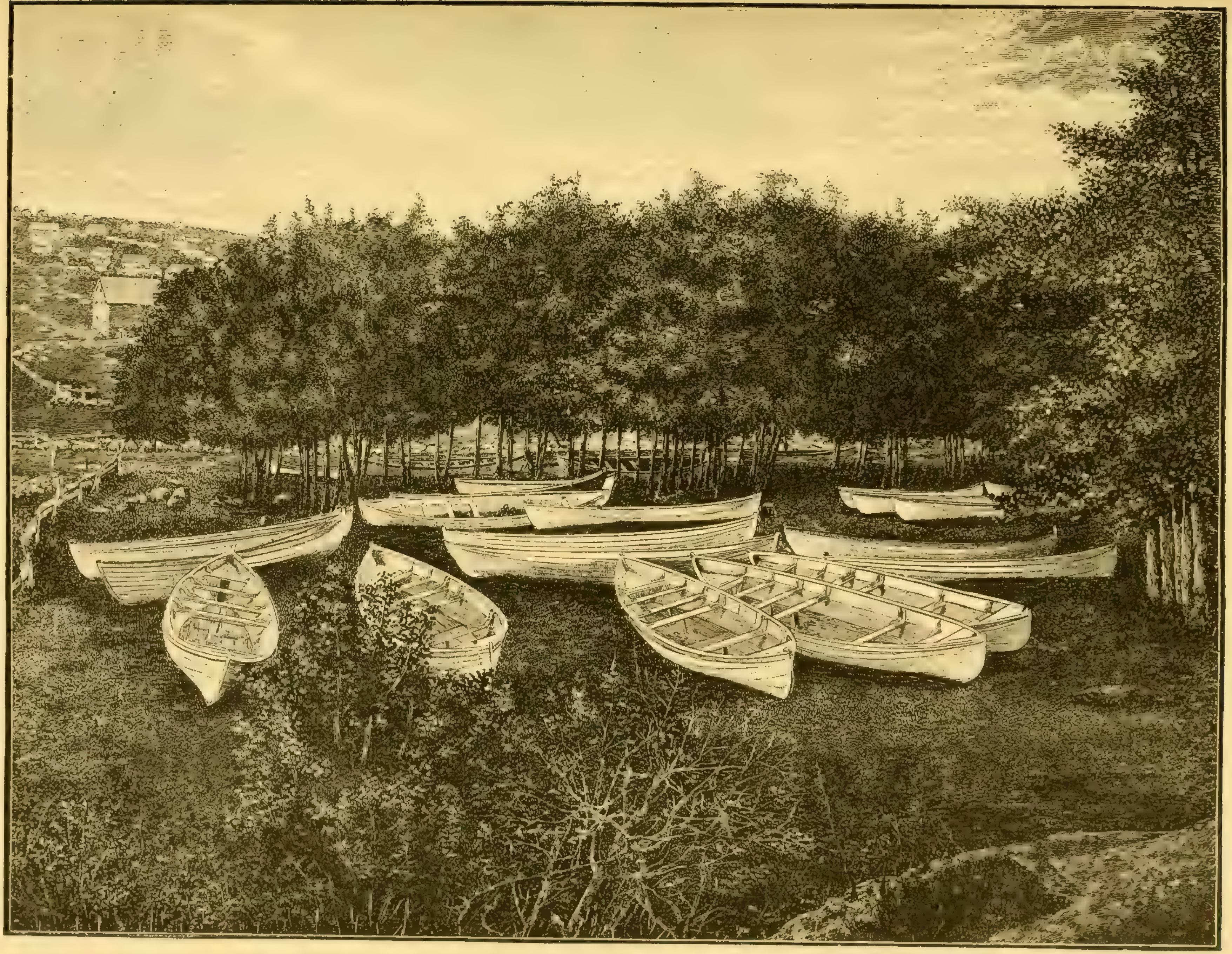
Deck plan of schooner: 1, bowsprit: 2, windlass; 3, jib-sheet traveller; 4, foremast; 5, fore companion; 6, fore-hatch grating; 7, main-hatch; 8, brake of quarter deck; 9, mainmast; 10, after-hatch; 11, grating to stow seines on; 12, barrel-head box; 13, stove-pipe; 14, skylight; 15, cabin companion-slide; 16, companion stairs; 17, steering wheel: 18, wheel-box. (Sect. v, vol. i, p. 248.)

Drawing by Capt. J. W. Collins.



THE MACKEREL PURSE-SEINE FISHERY.

Seine boat; purse davit and blocks, oar-rests; purse weight and purse blocks; bow-fittings. (Sect. v, vol. i, p. 250.)



THE MACKEREL PURSE-SEINE FISHERY.

Seine-boats in winter-quarters at Gloucester, Mass. (Sect. v, vol. i, p. 250.)

From a photograph by T. W. Smillie.

PLATE 59.

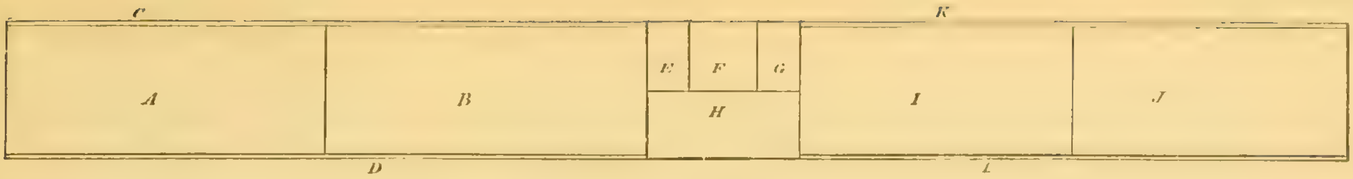


Fig. 1.

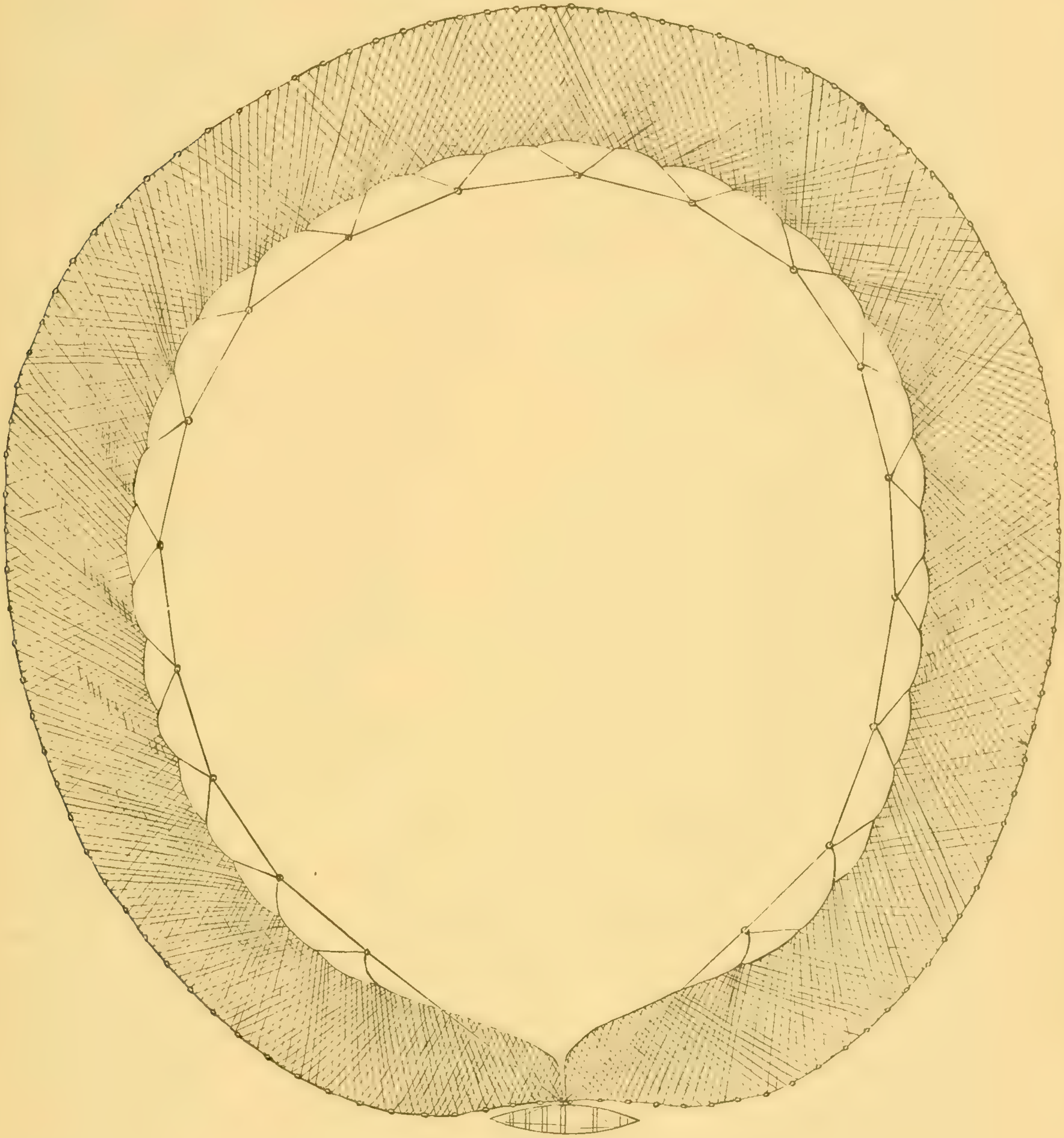


Fig. 2.

THE MACKEREL PURSE-SEINE FISHERY.

FIG. 1. Diagram showing the different sections of a purse-seine: *A* and *J*, arms of net; *B* and *I*, wings; *C*, *D*, *K*, and *L*, border of stout twine; *F*, bailing piece or bunt; *E* and *G*, sides; *H*, under.

FIG. 2. Diagram showing the form of a purse-seine when spread in the water. (Sect. v, vol. i, p. 252.)

Drawings by Capt. J. W. Collins

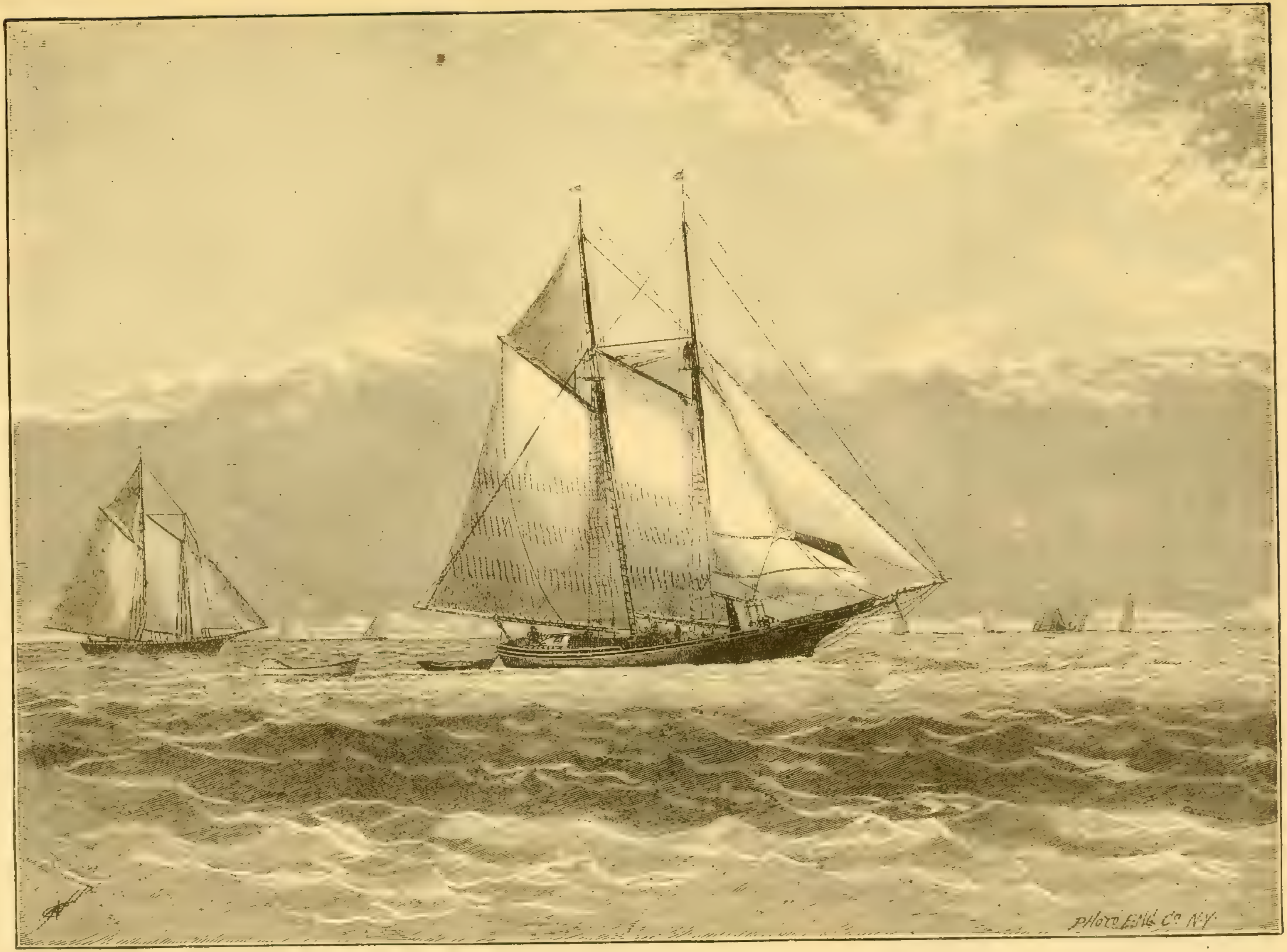


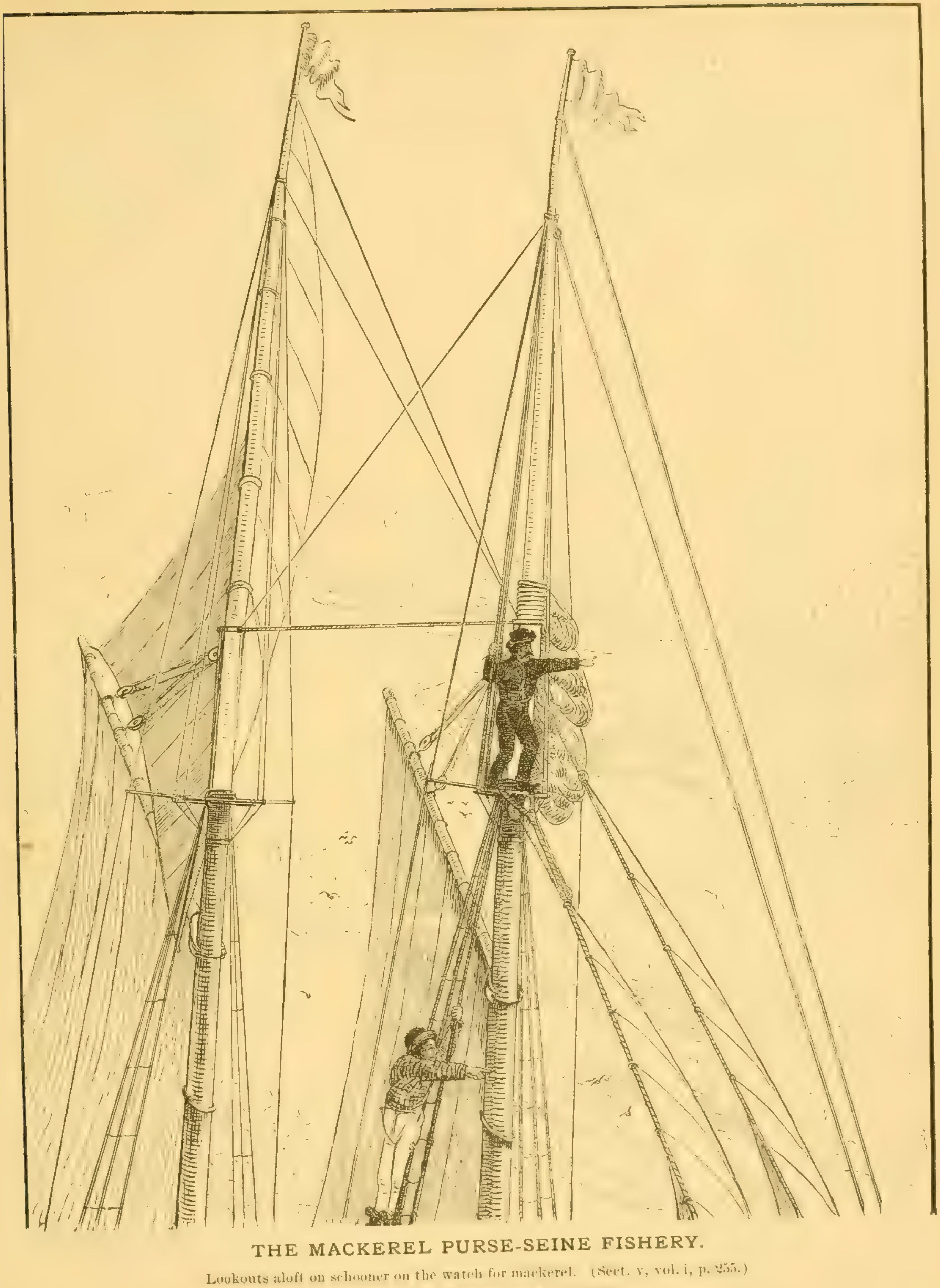
PHOTO ENG. Co. N.Y.

THE MACKEREL PURSE-SEINE FISHERY.

Mackerel schooner cruising in Massachusetts Bay, lookout at foremast head on the watch for schools (Sect. v, vol. i, p. 255.)

From a photograph by T W. Smillie.

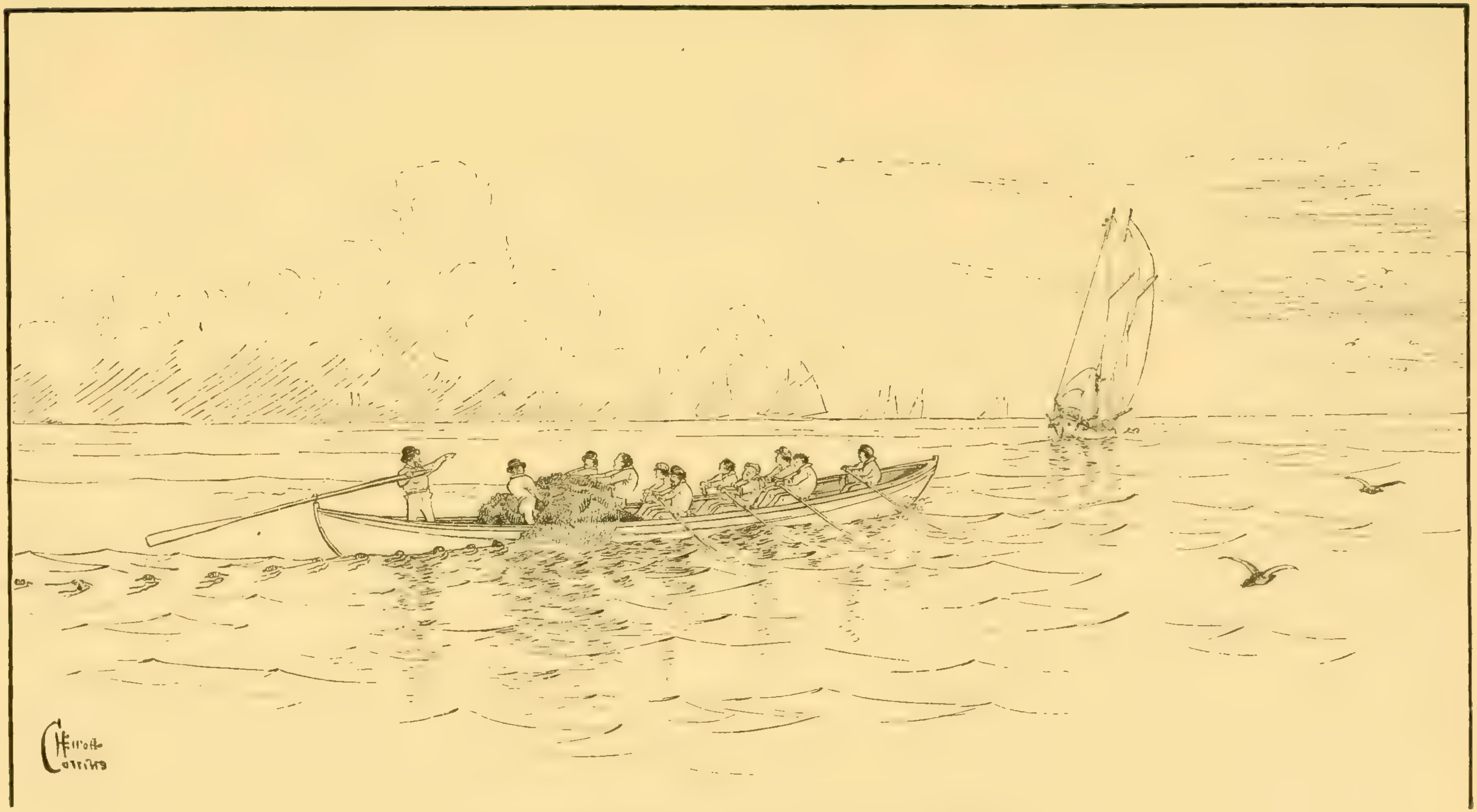
PLATE 61.



THE MACKEREL PURSE-SEINE FISHERY.

Lookouts aloft on schooner on the watch for mackerel. (Sect. v, vol. i, p. 255.)

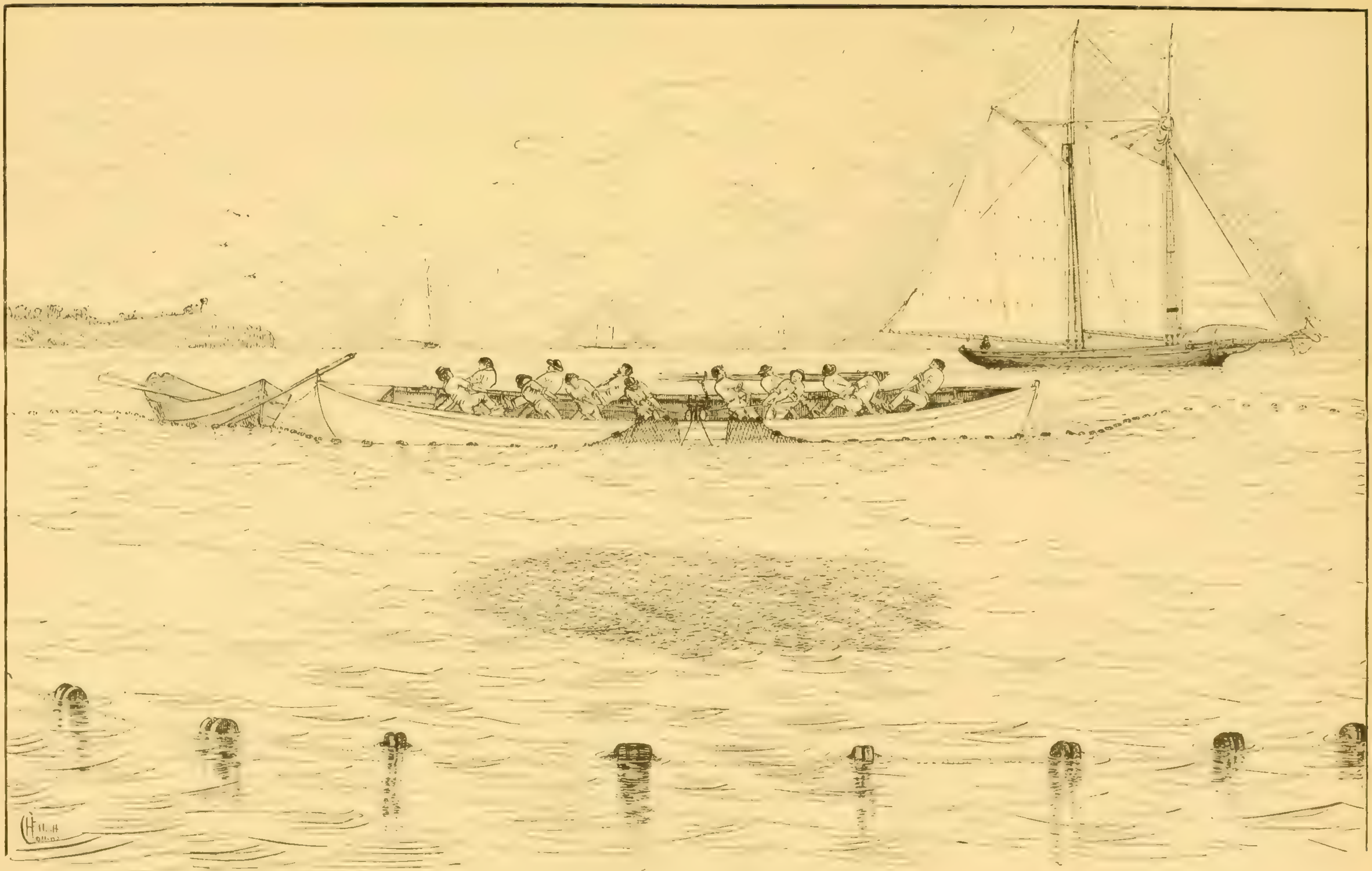
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL PURSE-SEINE FISHERY.

Seine-boat and crew "paying out" the seine. (Sect. v, vol. i, p. 256.)

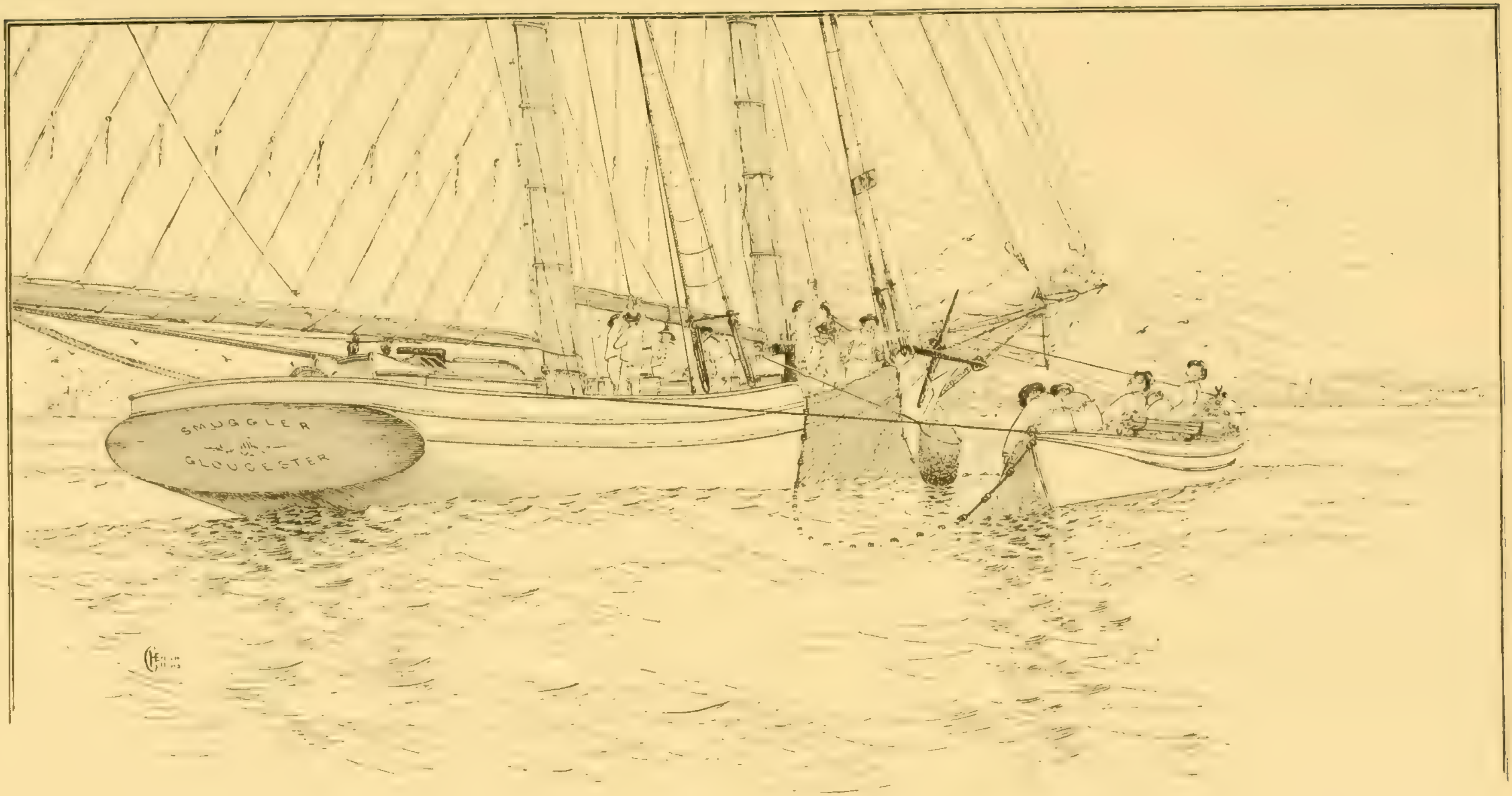
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL PURSE-SEINE FISHERY.

Seine-boat and crew "pursing the seine." (Sect. v, vol. i, p. 256.)

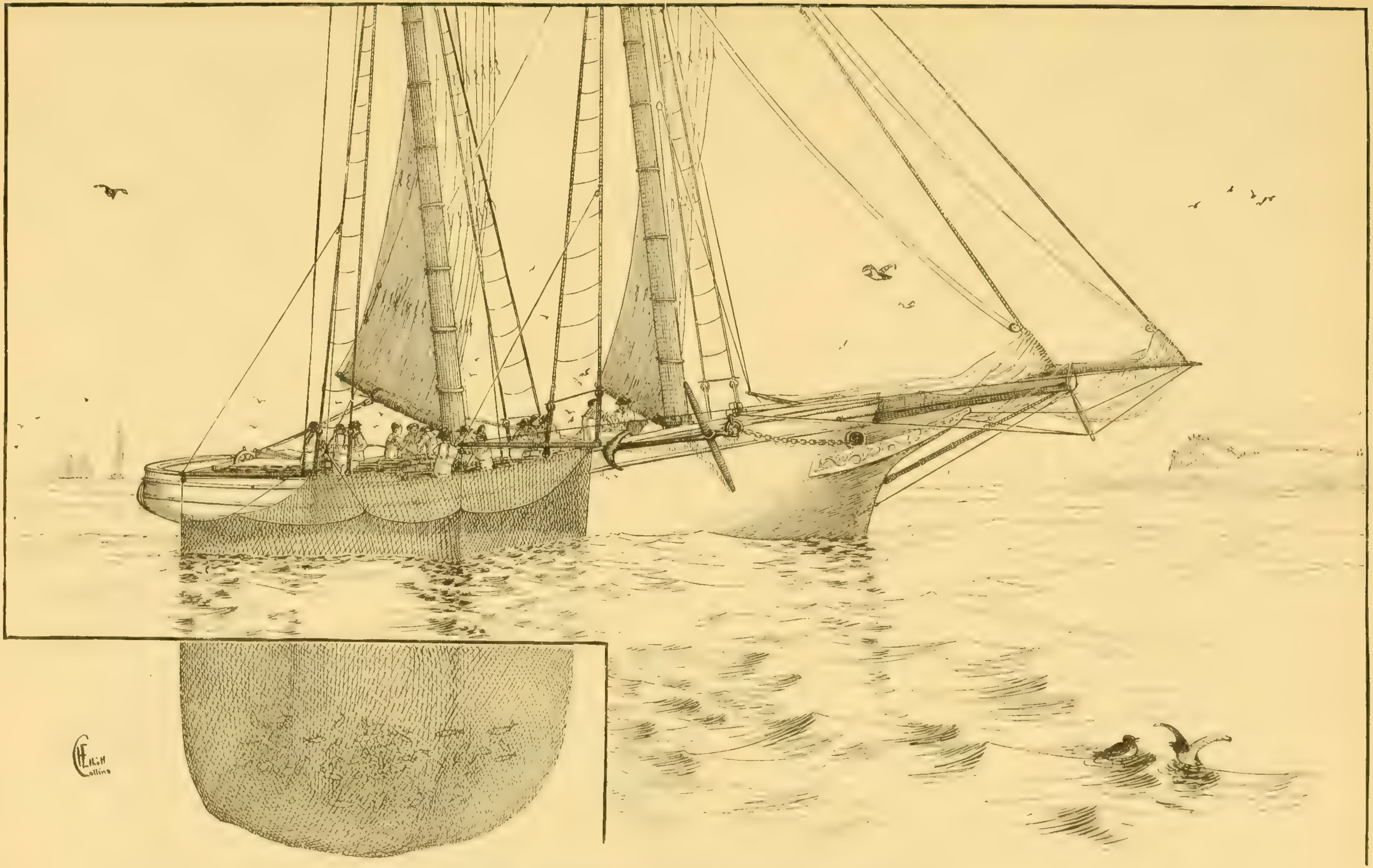
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL PURSE-SEINE FISHERY.

Schooner with crew at work bailing mackerel from the purse-seine. (Sect. v, vol. i, p. 258.)

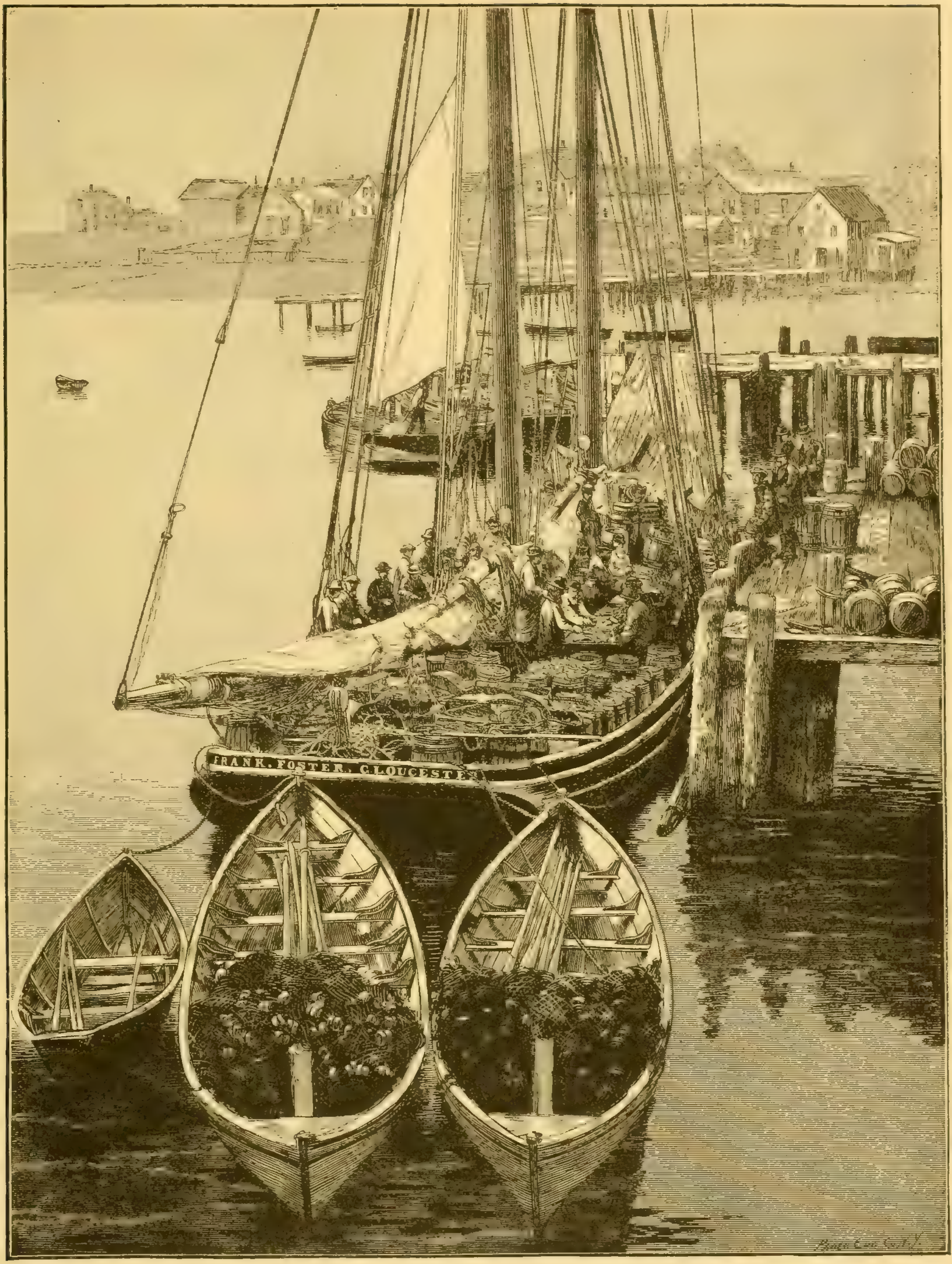
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL PURSE-SEINE FISHERY.

Schooner with mackerel pocket, or spiller, shipped at sea. (Sect. v, vol. I, p. 265.)

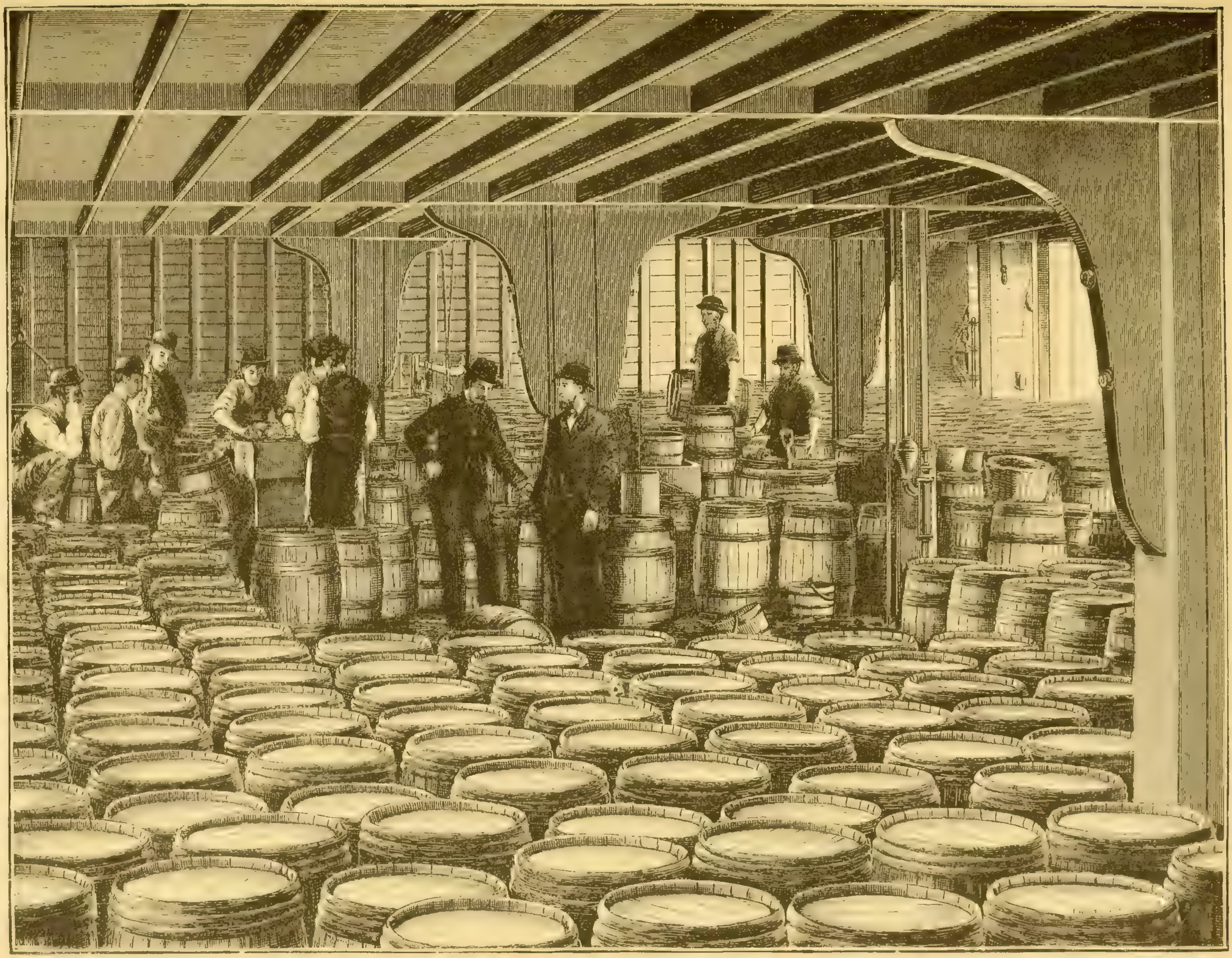
Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL PURSE-SEINE FISHERY.

Schooner just arrived from cruise; crew dressing and salting the fish. (Sect. v, vol. i, p. 267.)

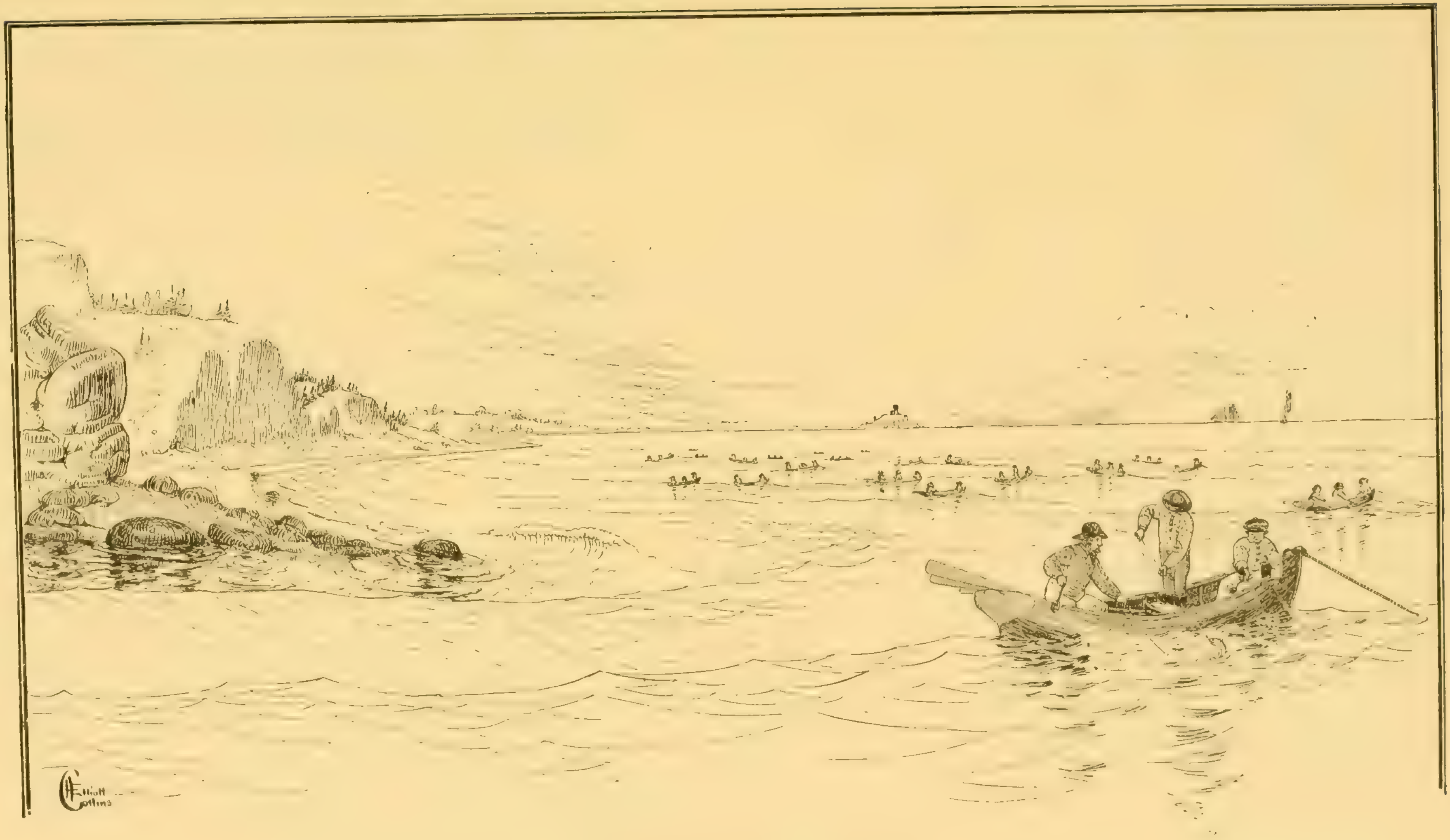
From a photograph by T. W. Smillie.



THE MACKEREL FISHERY.

Culling and packing mackerel at Portland, Me. (Sect. v, vol. i, p. 267.)

From a photograph by T. W. Smillie

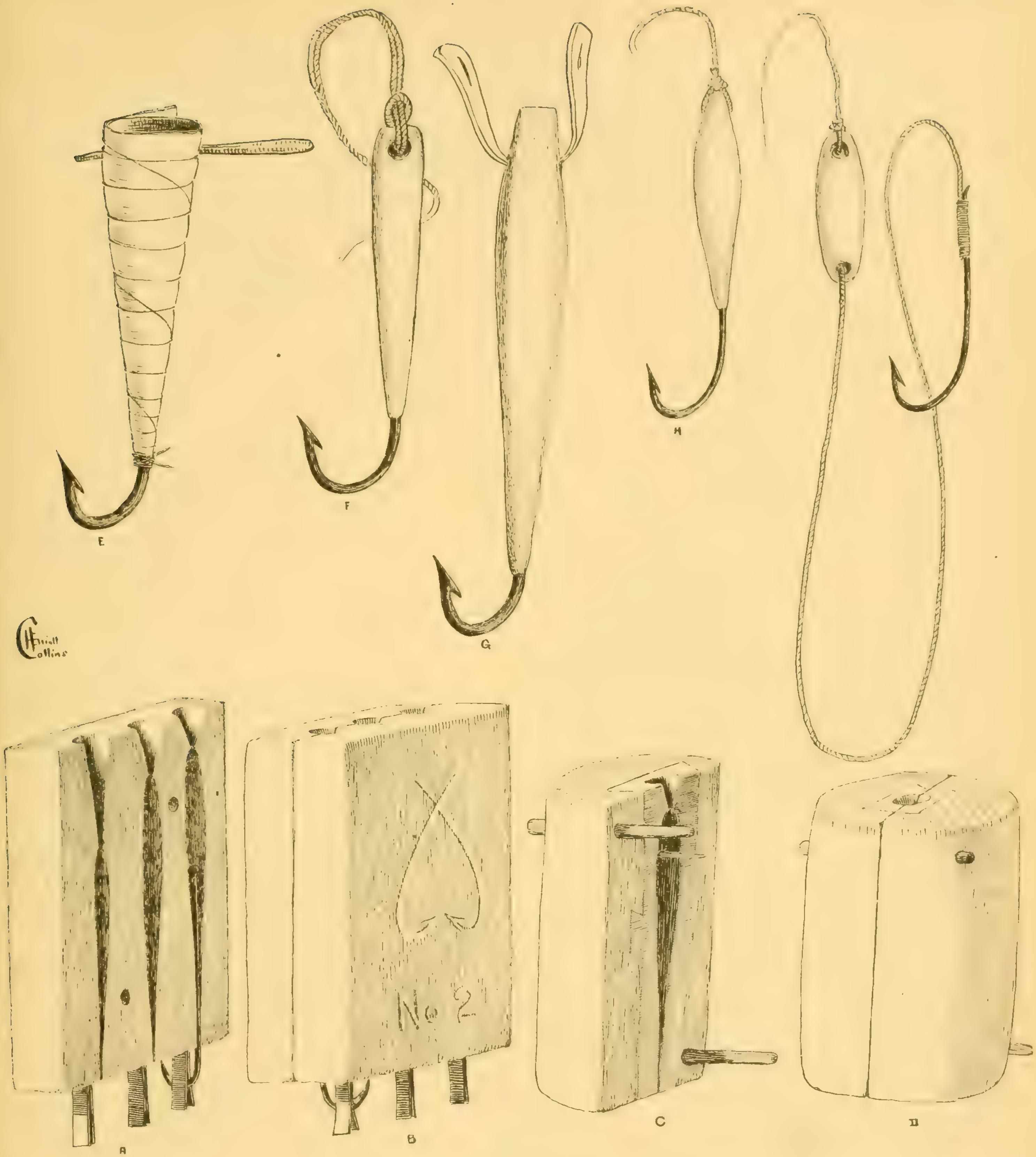


THE MACKEREL HOOK FISHERY.

Fishing for mackerel in boats. (Sect. v, vol. i, p. 275.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

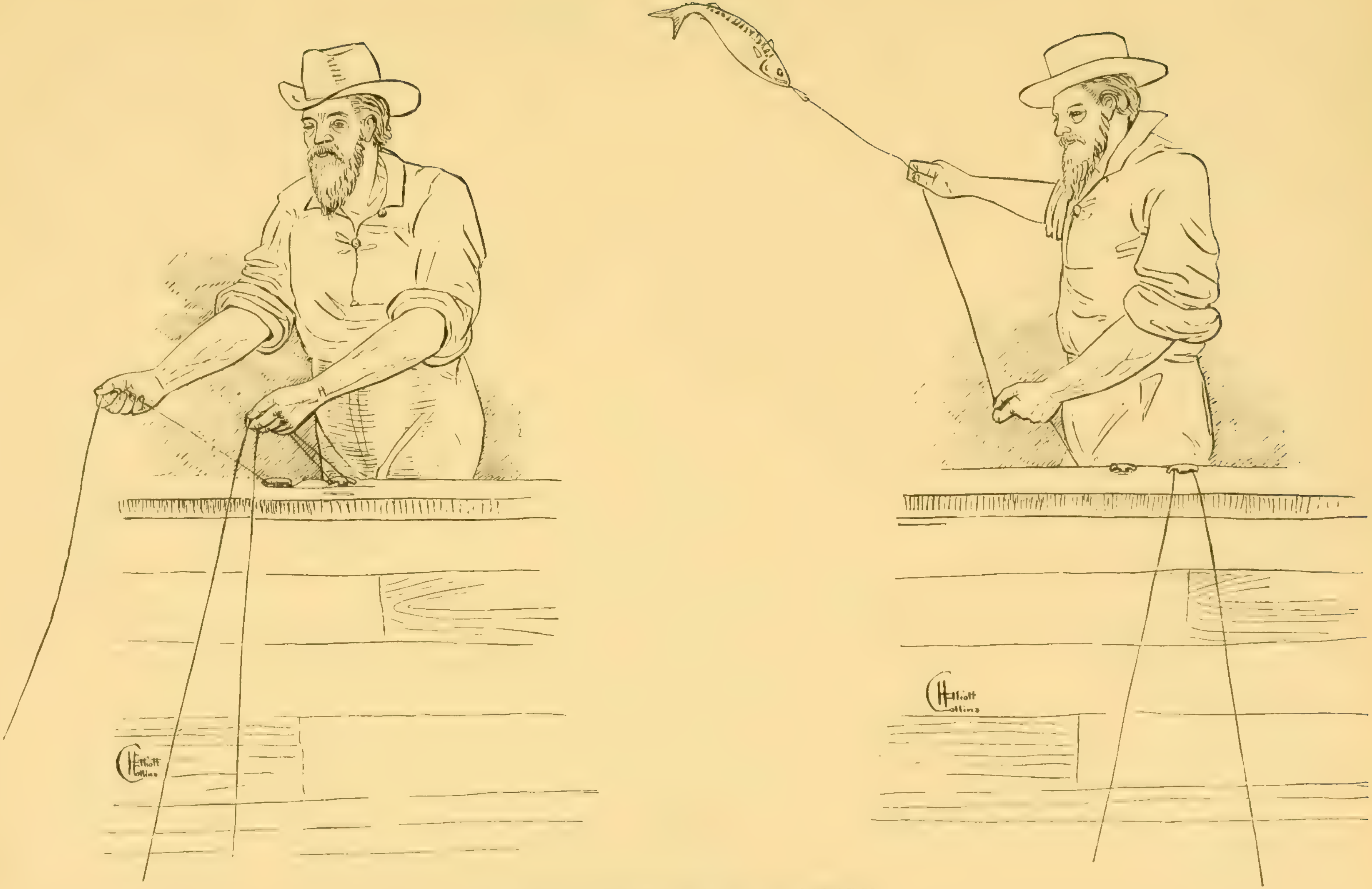
PLATE 69.



THE MACKEREL HOOK FISHERY.

Jigs and jig-molds: A, one side of soapstone jig mold, showing method of setting hook; B, soapstone jig-mold, closed; C, one side of lead jig-mold made by fishermen; D, lead jig-mold, closed; E, old-style paper jig-mold; F and G, types of jigs, natural size, cast in paper molds; H, type of jig, of medium size, cast in soapstone molds. I, mackerel bobber. (Sect. v, vol. i, p. 278.)

Drawings by H. W. Elliott and Capt. J. W. Collins.

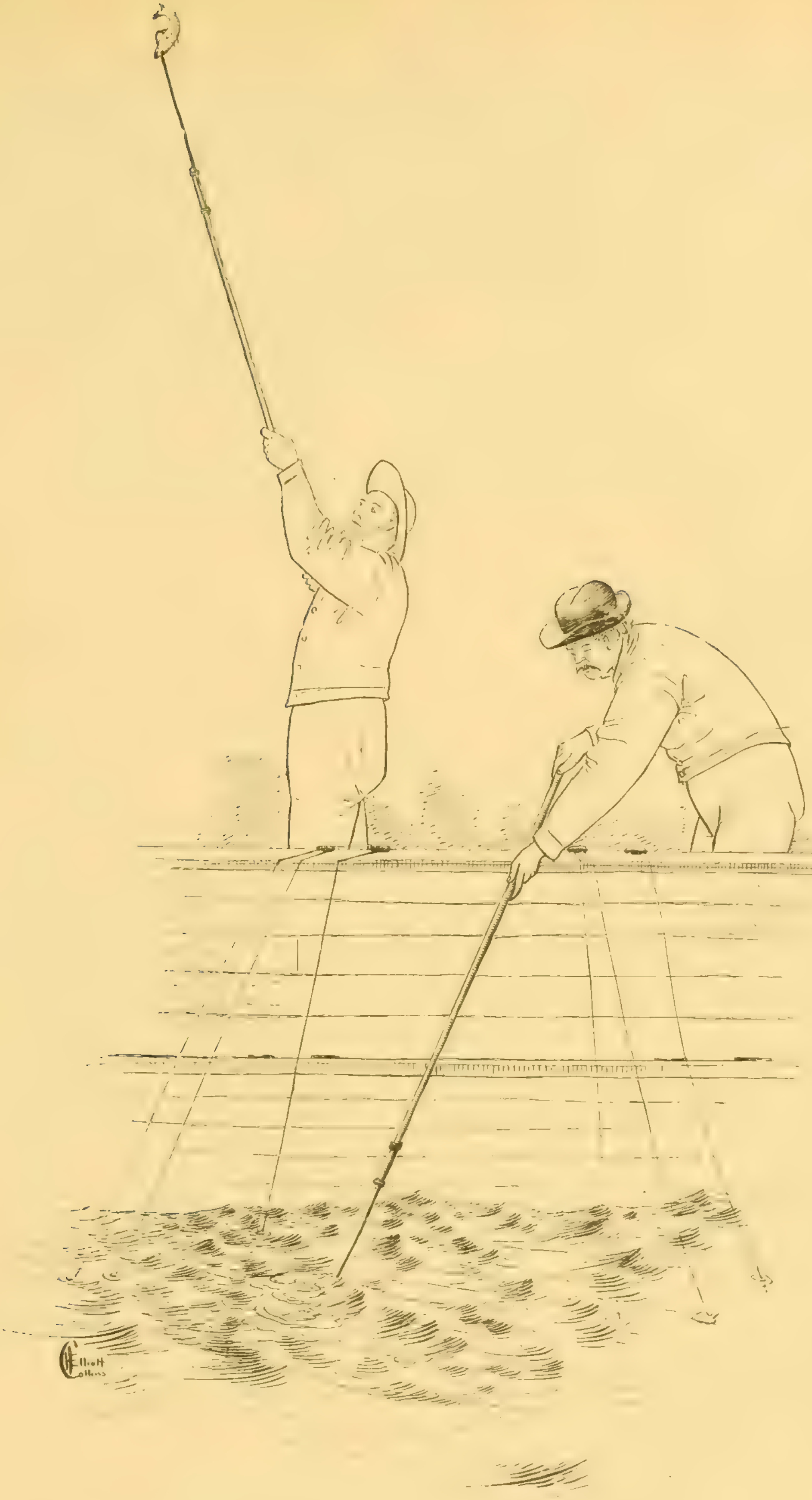


THE MACKEREL HOOK FISHERY.

Jigging mackerel over the vessel's rail. (Sect. v, vol. i, p. 284.)

Drawings by H. W. Elliott and Capt. J. W. Collins.

PLATE 71.



THE MACKEREL HOOK FISHERY.

Gaffing mackerel over the vessel's rail. (Sect. v, vol. i, p. 279.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

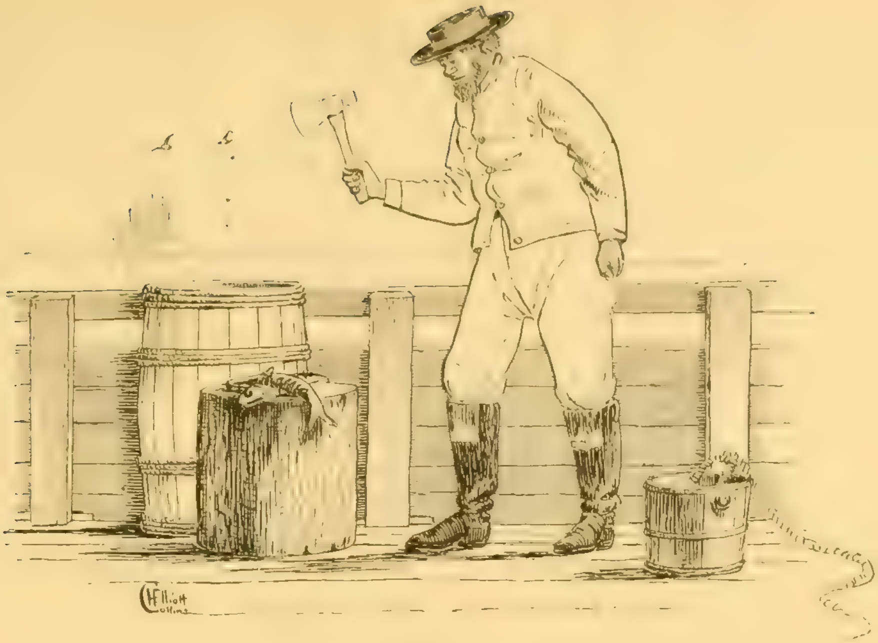


Fig. 1.

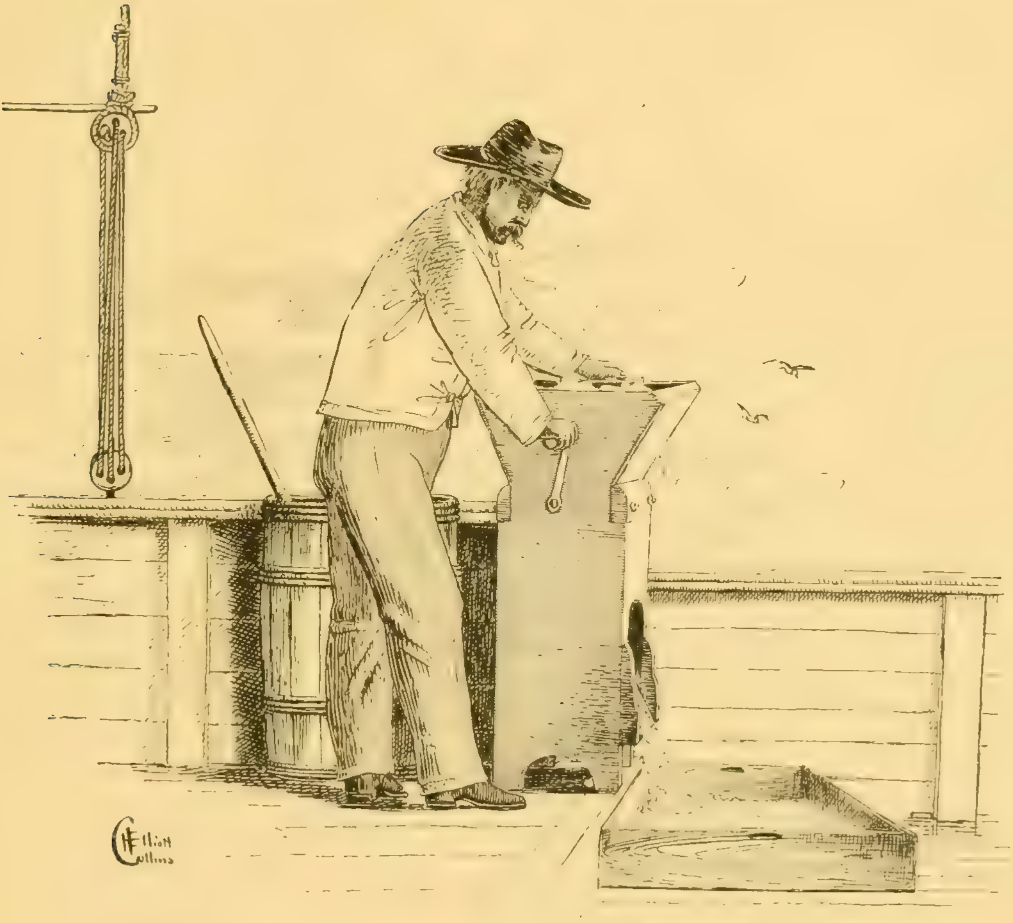
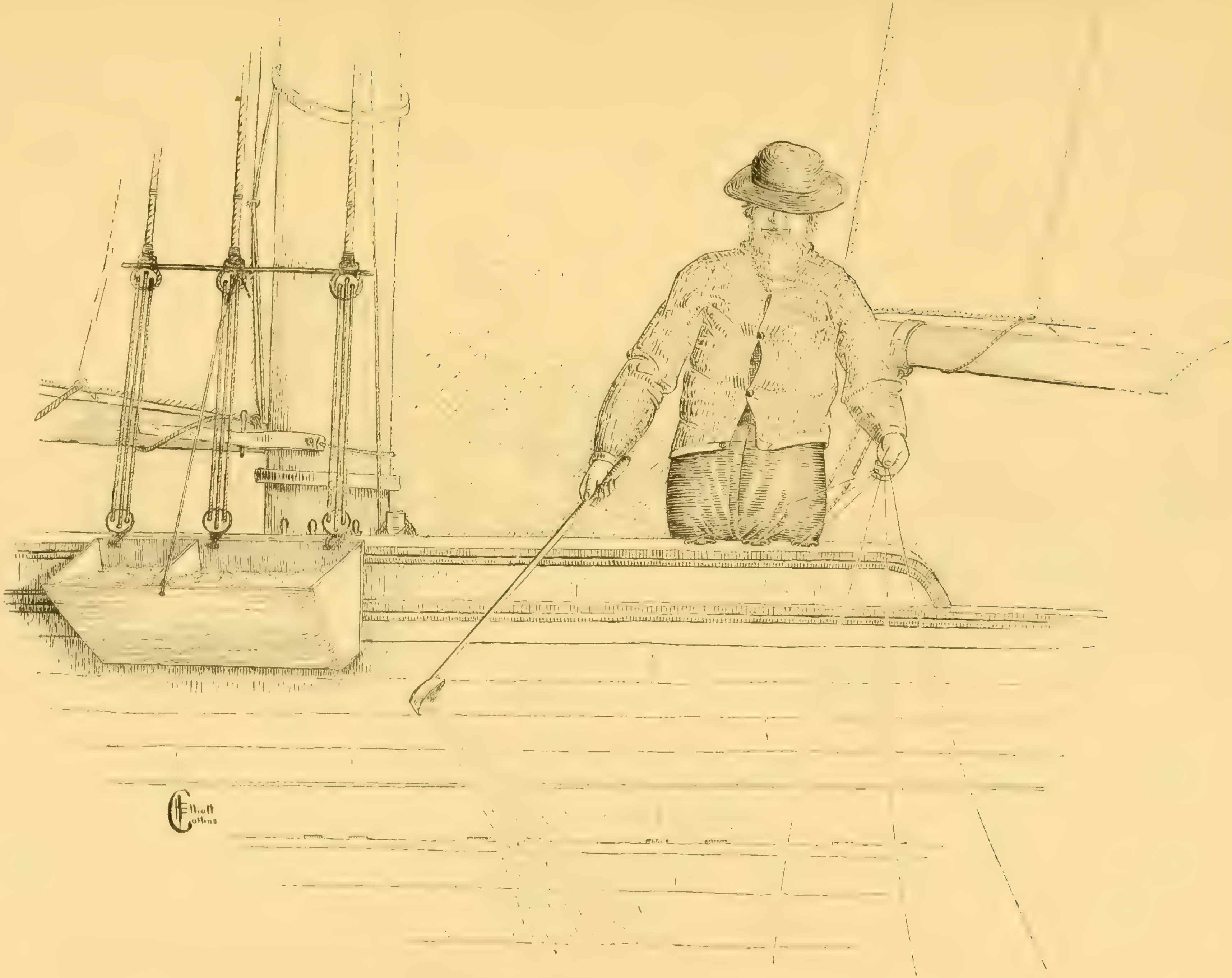


Fig. 2.

THE MACKEREL HOOK FISHERY.

FIG. 1. The old method of chopping bait. (Sect. v, vol. i, pp. 279-283.)
FIG. 2. The modern bait-mill. (Sect. v, vol. i, pp. 279-283.)

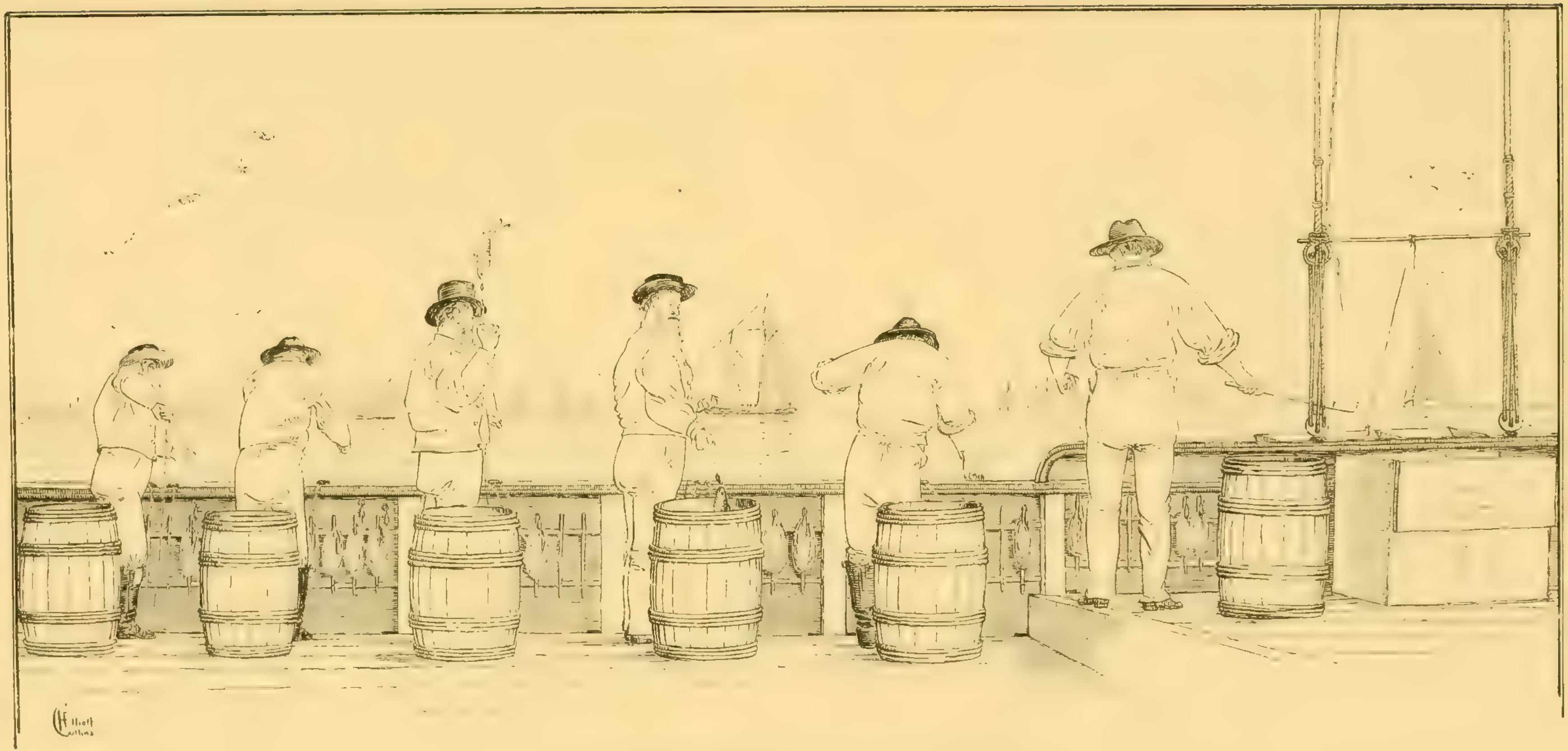
Drawings by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL HOOK FISHERY.

Throwing bait to toll mackerel alongside the vessel. (Sect. v, vol. i, p. 284.

Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL HOOK FISHERY.

Deck scene on mackerel hand-line schooner; jigging mackerel, slatting in the barrel, throwing toll bait. (Sect. v, vol. i, p. 284.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

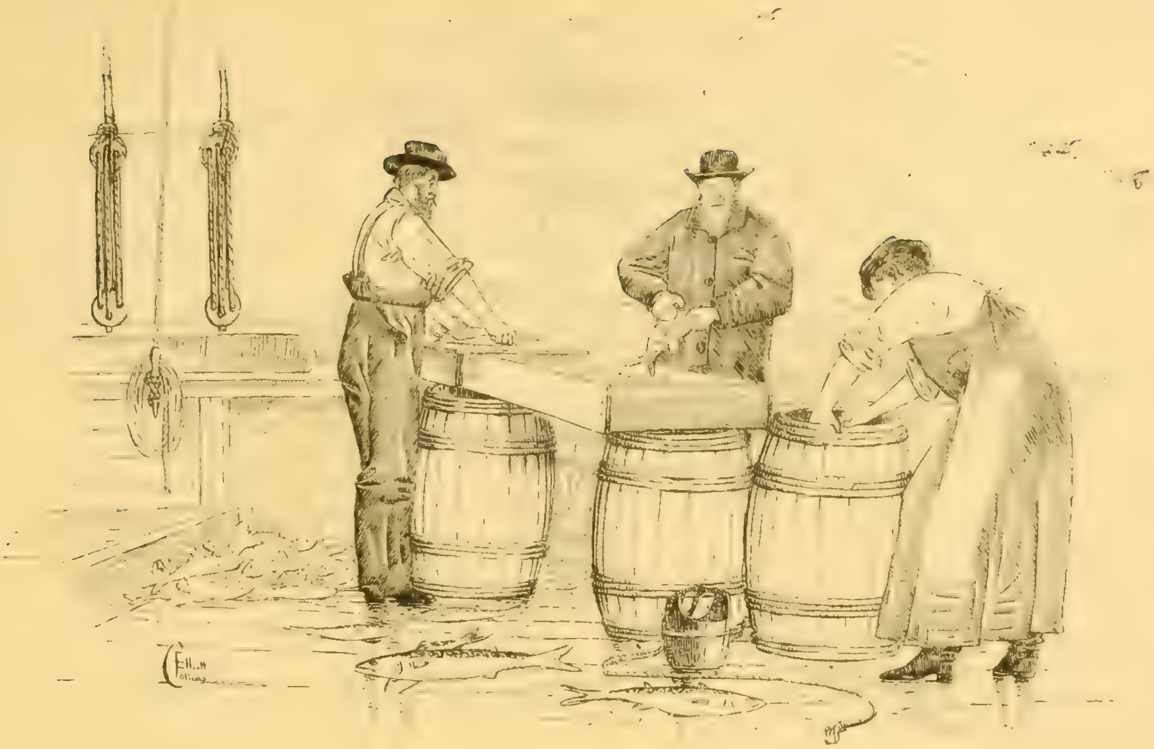


Fig. 1.—Splitting, cleaning, and washing.

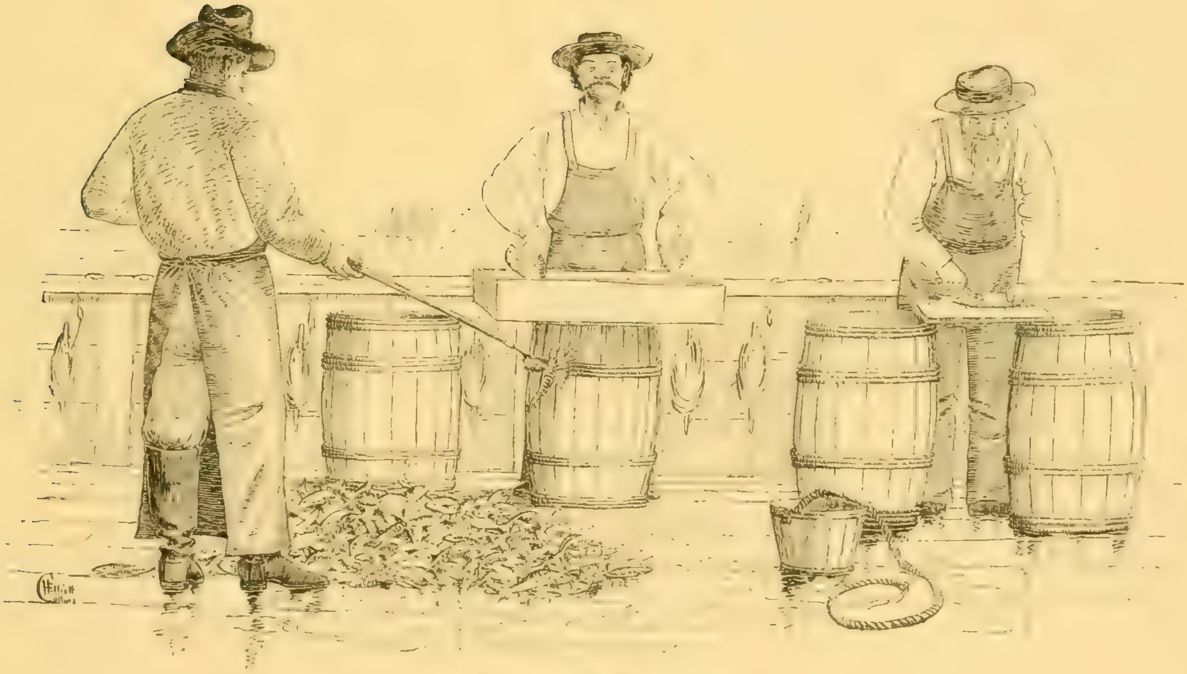
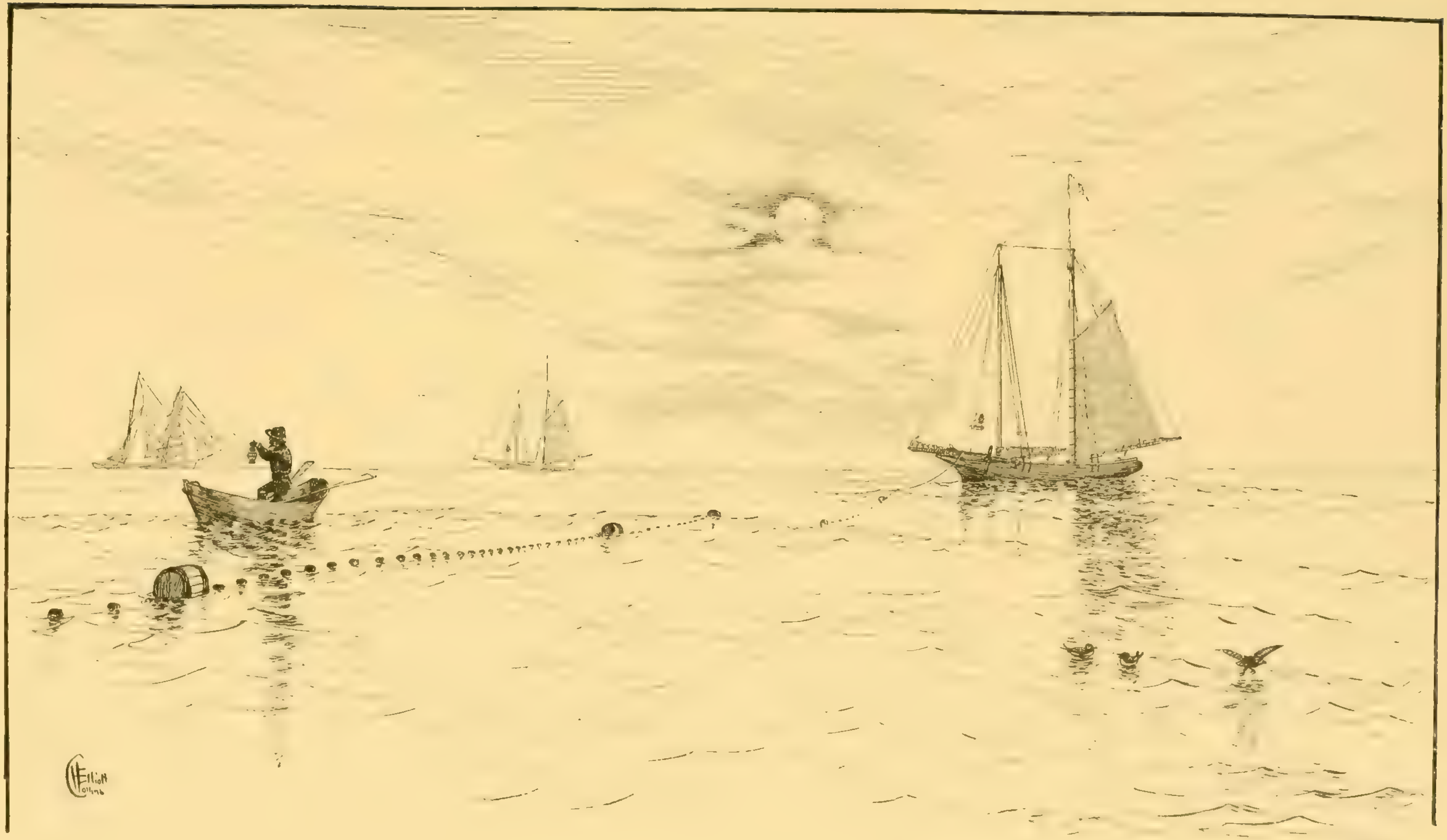


Fig. 2.—Pitching, salting, and plowing.

THE MACKEREL HOOK FISHERY.

Mackerel packing on shipboard. (Sect. v, vol. i, p. 287.)

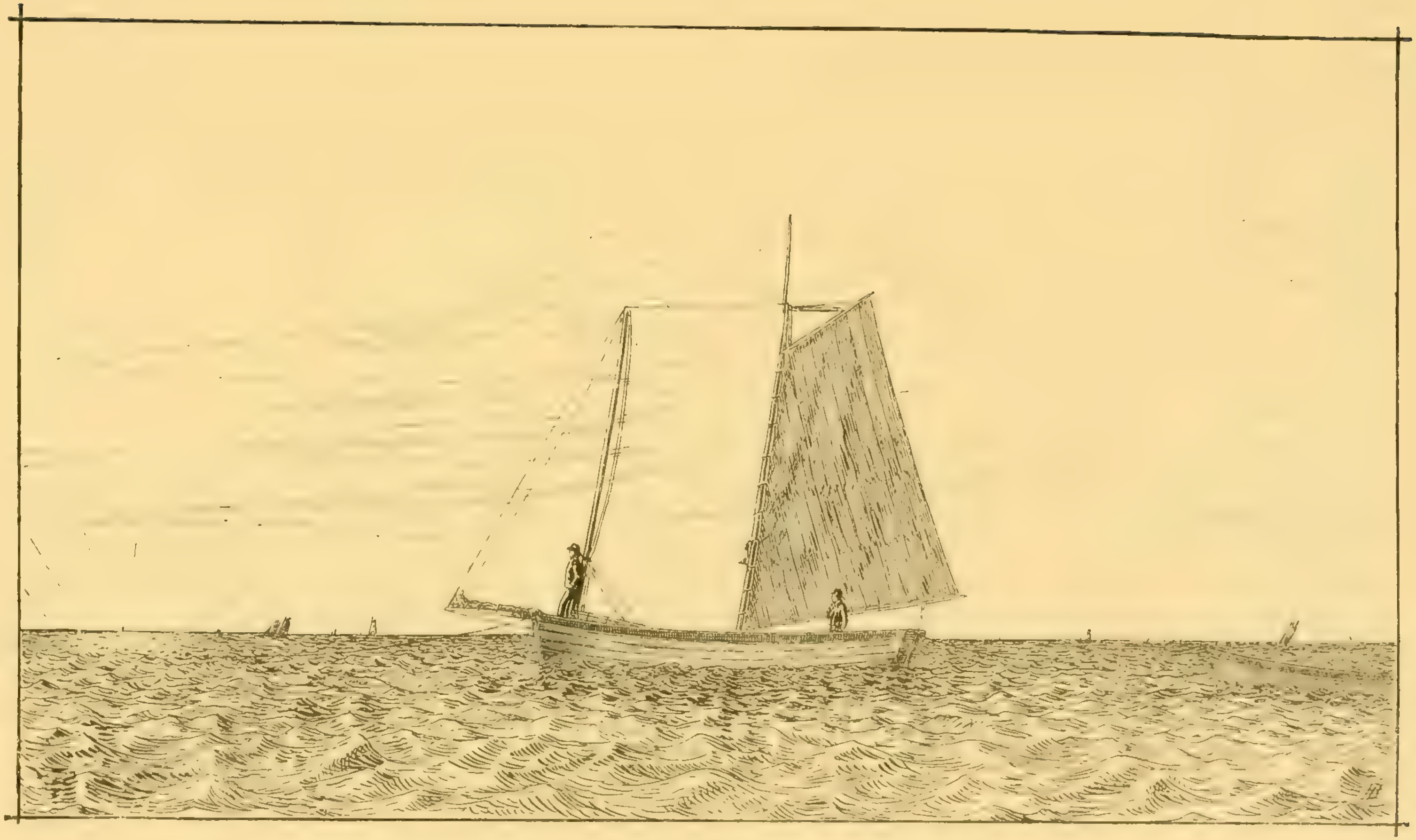
Drawings by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL GILL-NET FISHERY.

Drag-nets set at night off coast of Maine. (Sect. v, vol. i, p. 294.)

Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL GILL-NET FISHERY.

Cape Cod mackerel drag-boat "lying to" at night. (Sect. v, vol. i, p. 294.)

Drawing by Capt. J. W. Collins.

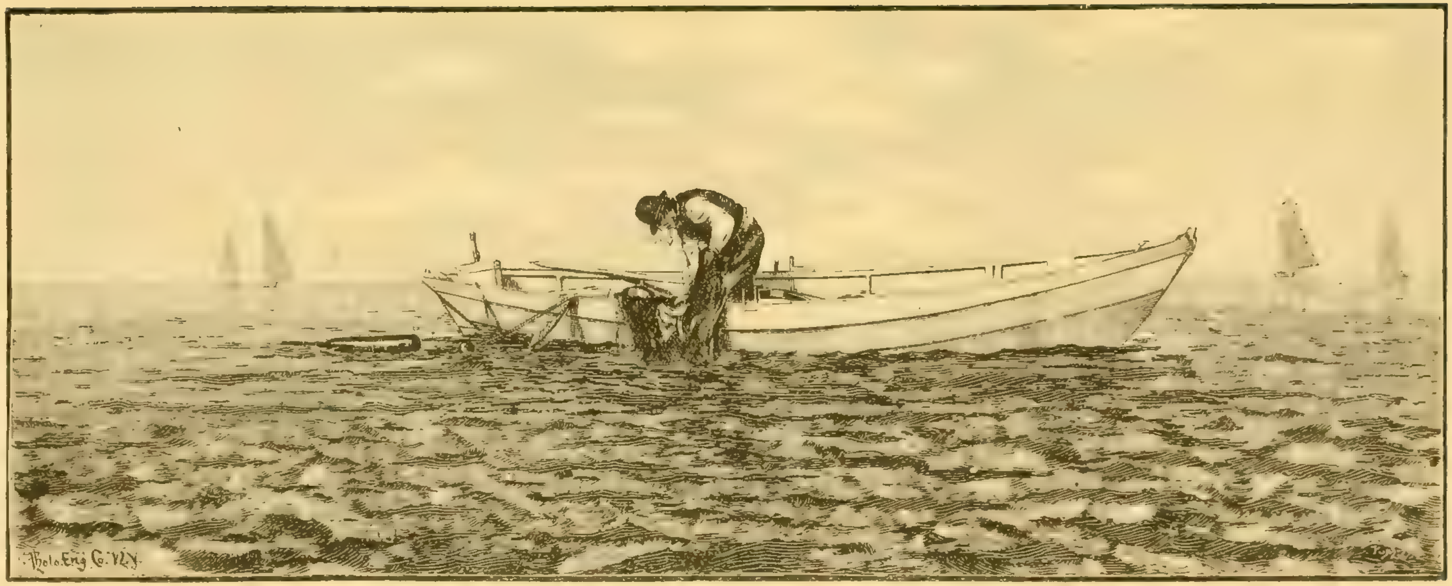
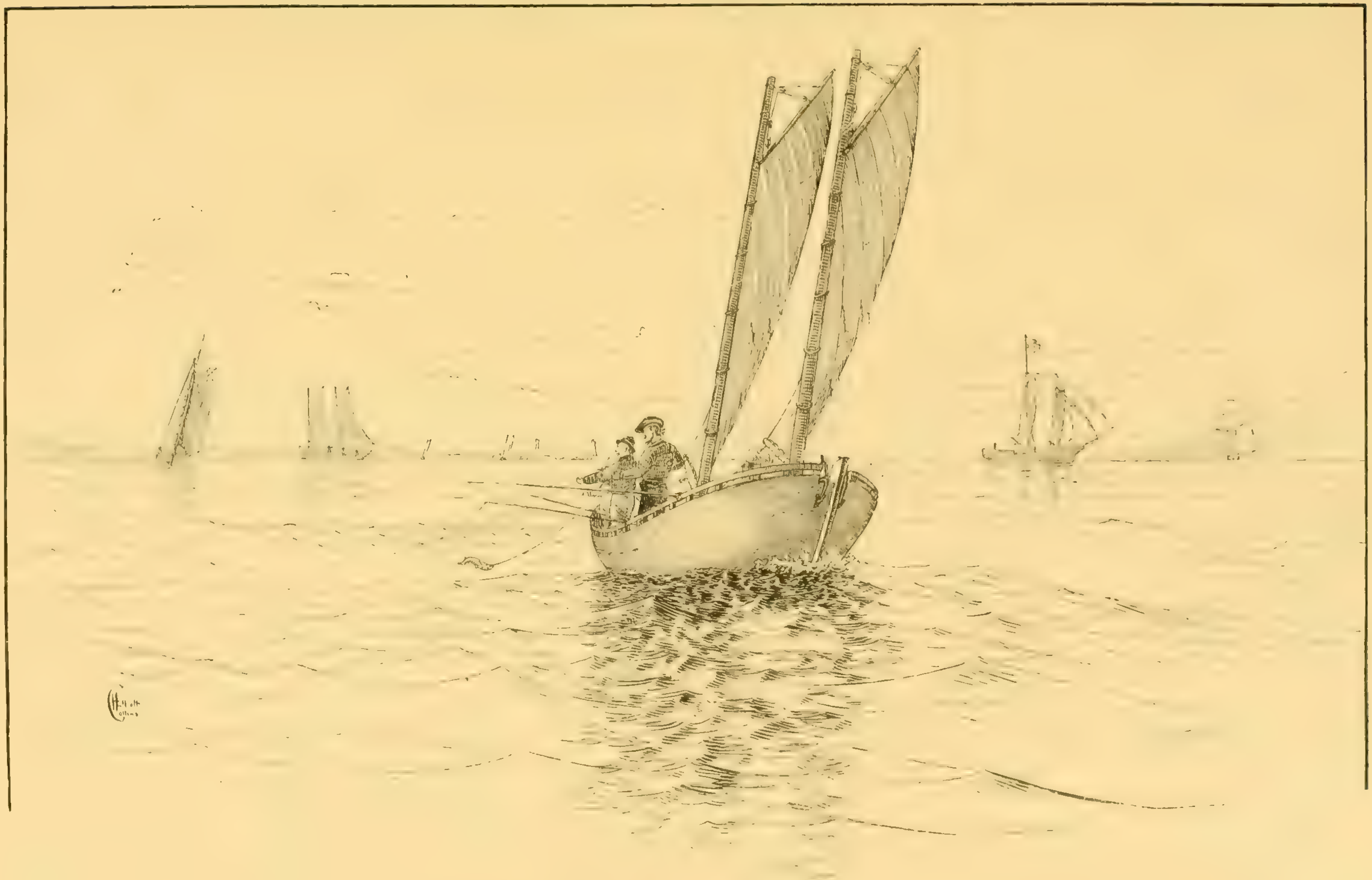


Photo.Eng.Co.N.Y.

THE MACKEREL GILL-NET FISHERY.

Dory fisherman picking mackerel gill-nets. (Sect. v, vol. i, p. 294.)

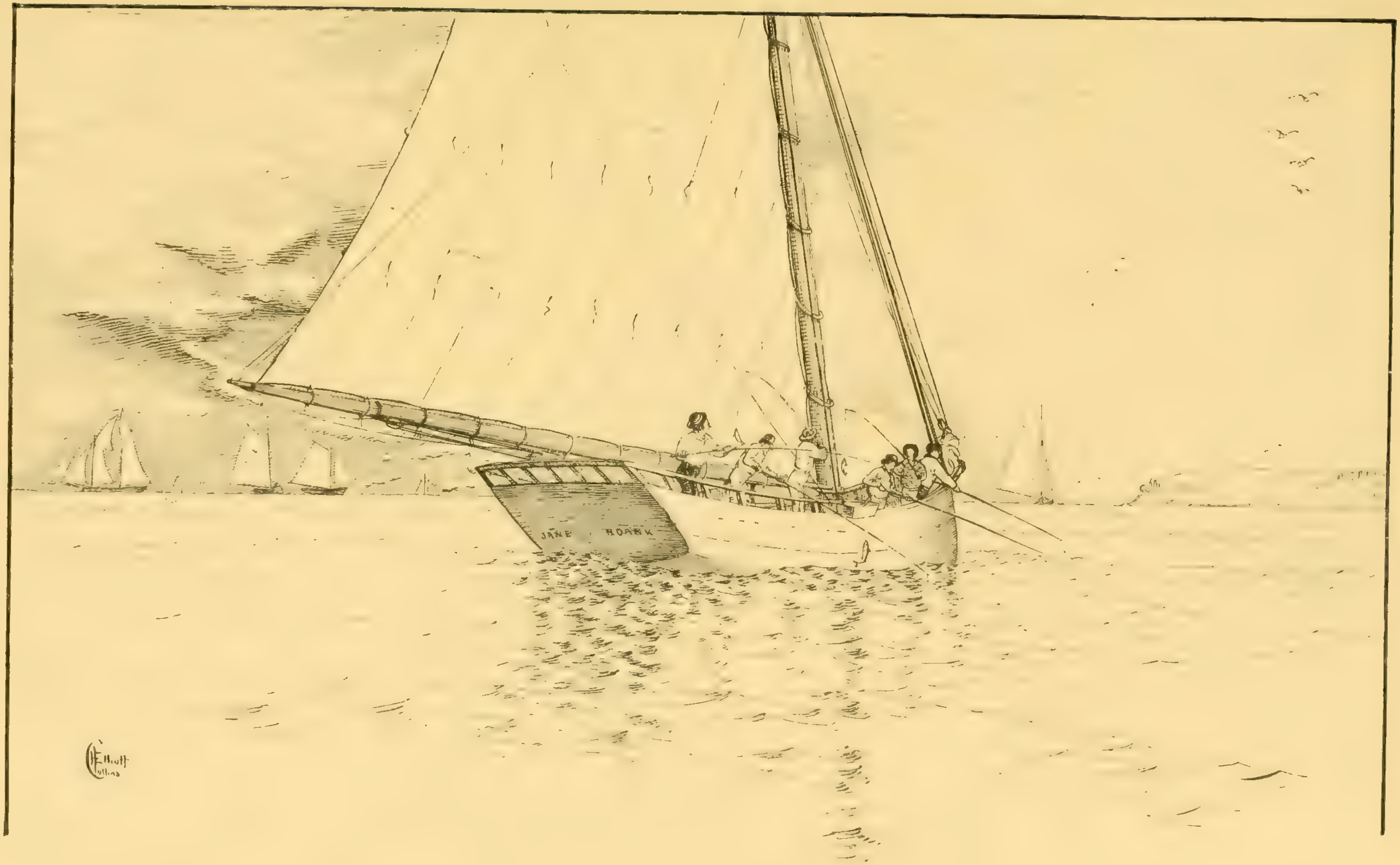
From a photograph by T. W. Smillie.



THE MACKEREL FISHERY—EARLY METHODS.

Old style Chebacco boat drailing for mackerel. (Sect. v, vol. i, p. 299.)

Drawing by H. W. Elliott and Capt. J. W. Collins.



THE MACKEREL FISHERY—EARLY METHODS.

Angling with poles for mackerel from old style Noank, Conn., sloop. (Sect. v, vol. i, p. 299.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

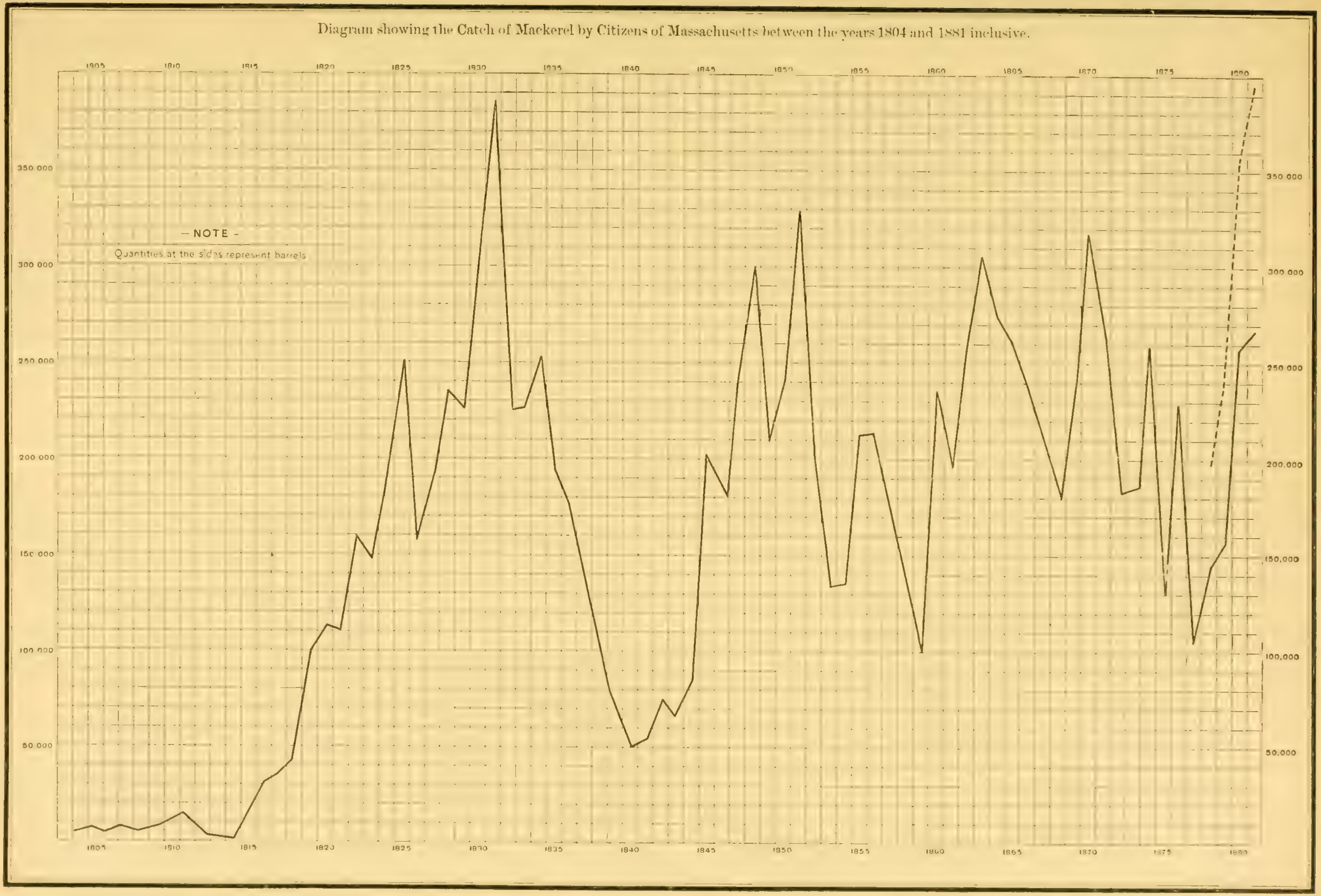
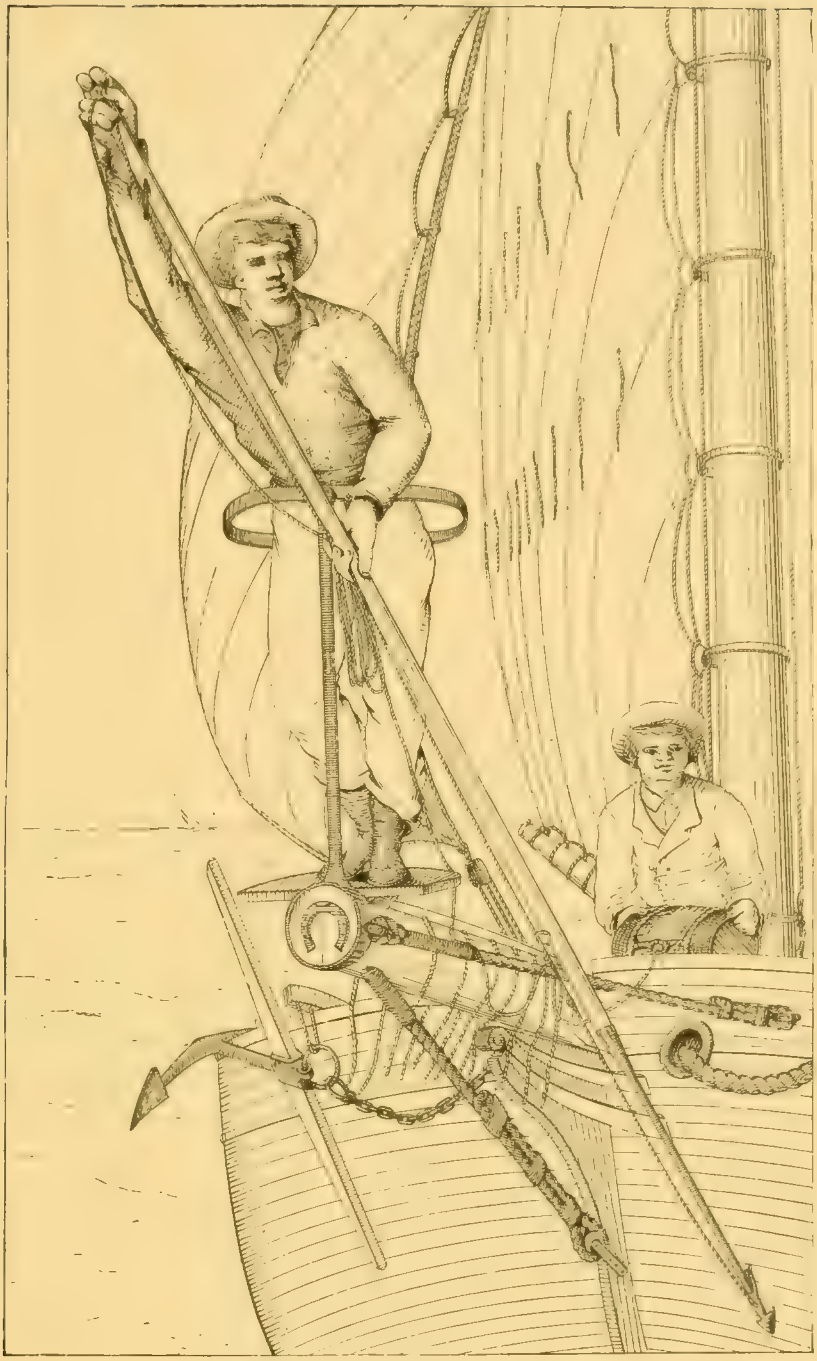


Diagram showing the Catch of Mackerel by Citizens of Massachusetts between the years 1804 and 1881 inclusive.

THE MACKEREL FISHERY.

Statistics of inspection of salt mackerel; the total product marketed fresh and salt, 1878 to 1881, shown by the broken line. (Sect. v, vol. 1, p. 312.)

From Report U. S. Fish Commission, Part IX, 1881

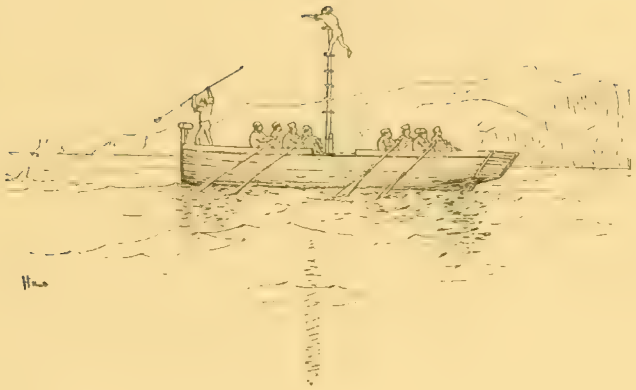


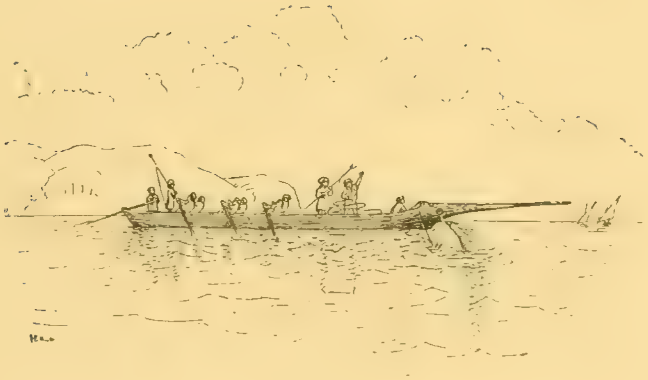
THE SWORDFISH FISHERY.

Swordfisherman in position for action. (Sect. v, vol. 1, p. 318.)

From Report U. S. Fish Commission, Part VIII, 1880.

PLATE 83.



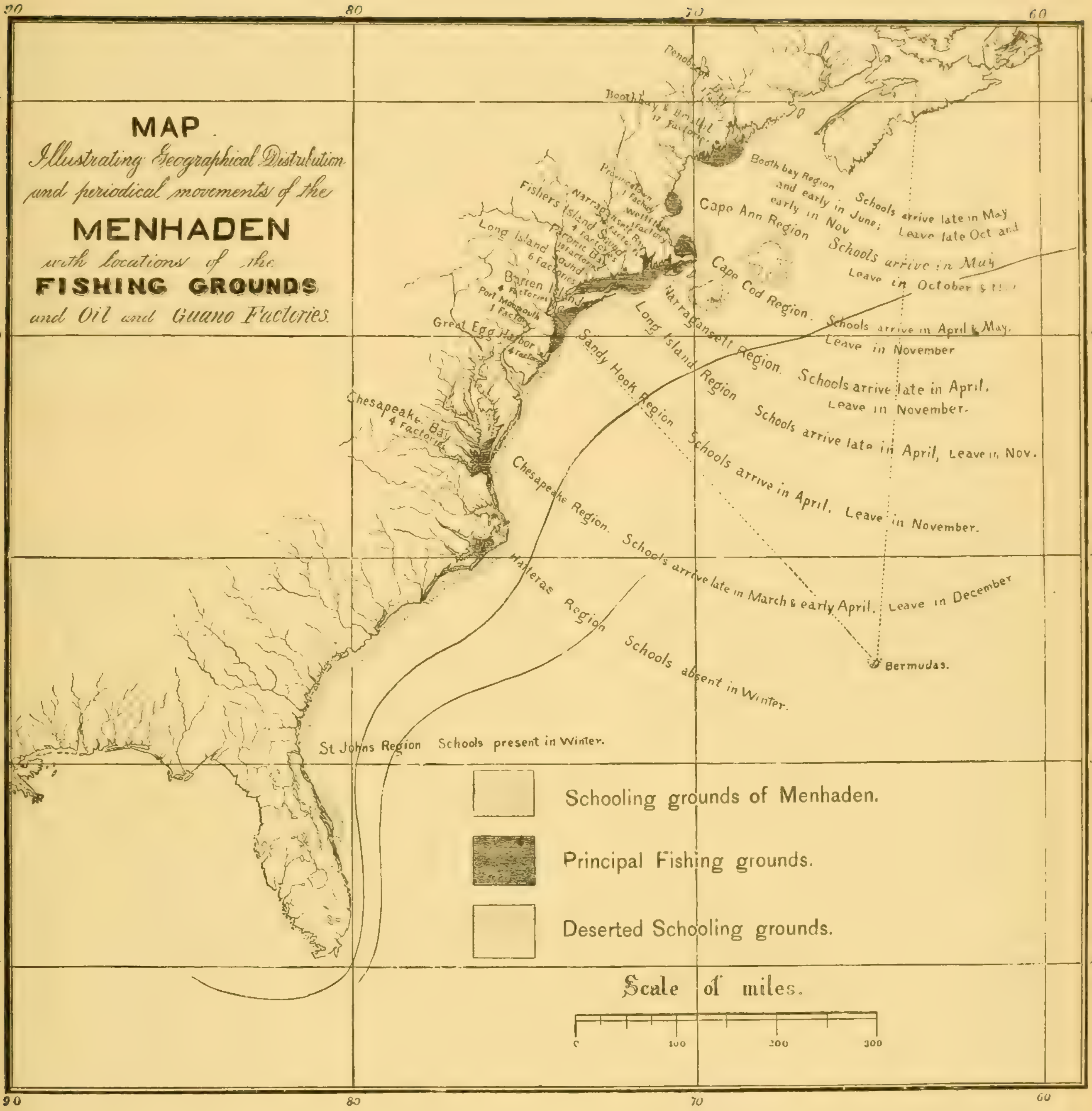


THE SWORDFISH FISHERY.

Methods of fishing in the Mediterranean Sea.

Drawings by H. W. Elliott in Report U. S. Fish Commission, Part VIII, 1880

PLATE 84


MAP
Illustrating Geographical Distribution
and periodical movements of the
MENHADEN
with locations of the
FISHING GROUNDS
and Oil and Guano Factories.
Penobscot Bay
Boothbay & Bristol 17 Factories
Booth bay Region Schools arrive late in May and early in June; Leave late Oct and early in Nov
Provincetown 1 Factory
Wellfleet 1 Factory
Narragansett Bay 4 Factories
Fishers Island Sound 4 Factories
Peconic Bay 19 Factories
Long Island Sound 6 Factories
Barren Island 4 Factories
Port Monmouth 1 Factory
Great Egg Harbor 4 Factories
Chesapeake Bay 4 Factories
Cape Ann Region Schools arrive in May Leave in October & ...
Cape Cod Region. Schools arrive in April & May. Leave in November
Narragansett Region. Schools arrive late in April. Leave in November.
Long Island Region Schools arrive late in April, Leave in Nov.
Sandy Hook Region Schools arrive in April. Leave in November.
Chesapeake Region. Schools arrive late in March & early April. Leave in December
Hatteras Region Schools absent in Winter.
St Johns Region Schools present in Winter.
Bermudas.
Schooling grounds of Menhaden.
Principal Fishing grounds.
Deserted Schooling grounds.
Scale of miles.
0
100
200
300
90
80
70
60
45
40
35
30
25

THE MENHADEN FISHERY.

The fishing grounds and oil factories in 1878. (Sect. v, vol. i, pp. 331, 343.)

(No factories now in Maine; large number in Chesapeake Bay.)

From Report U. S. Fish Commission, Part VI, 1878.

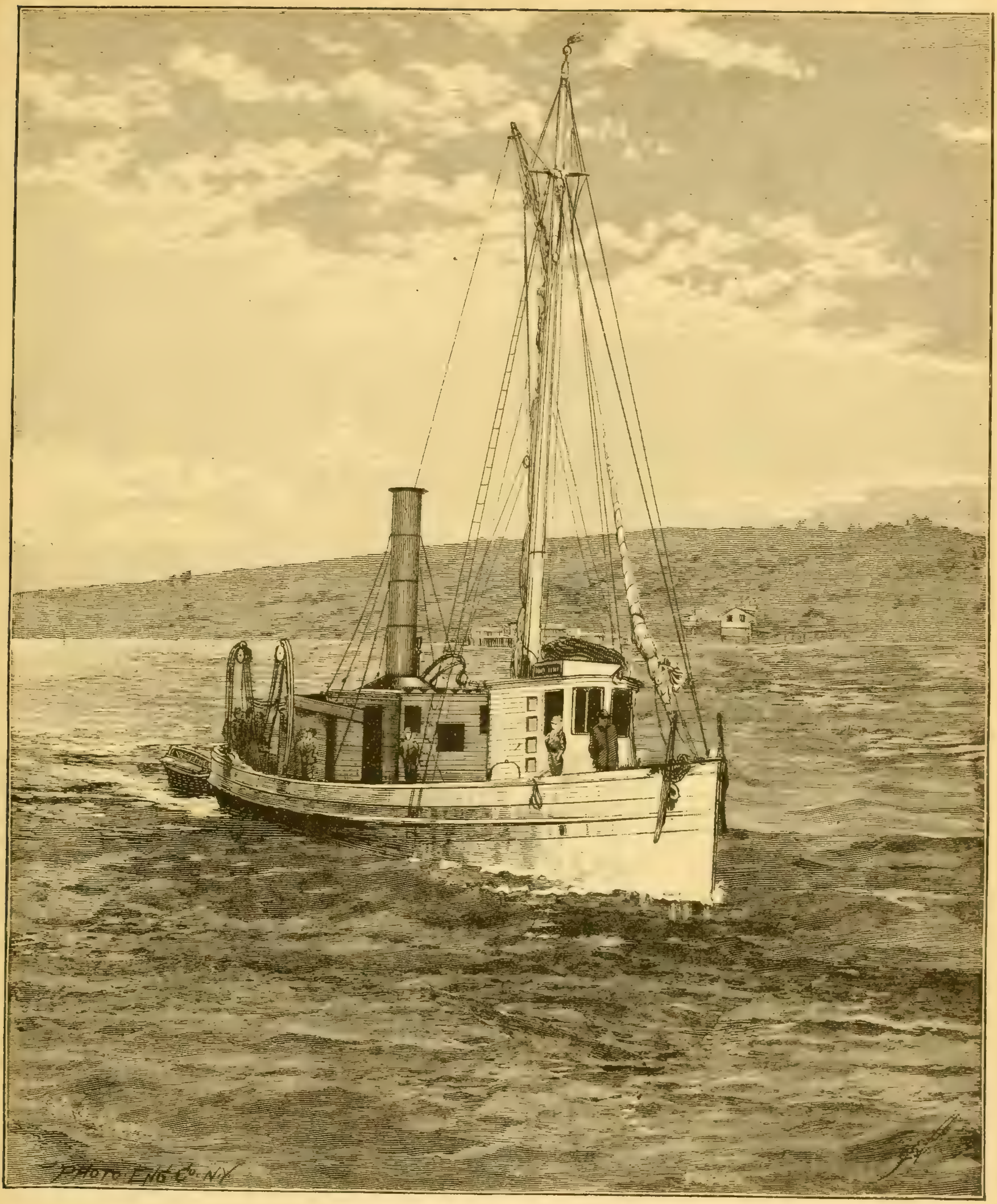


PHOTO ENG Co. N.Y.

THE MENHADEN FISHERY.

Menhaden steamer Joseph Church approaching oil and guano factory at Tiverton, R. I. (Sect. v, vol. i, p. 334.)

From a photograph by T. W. Smillie.

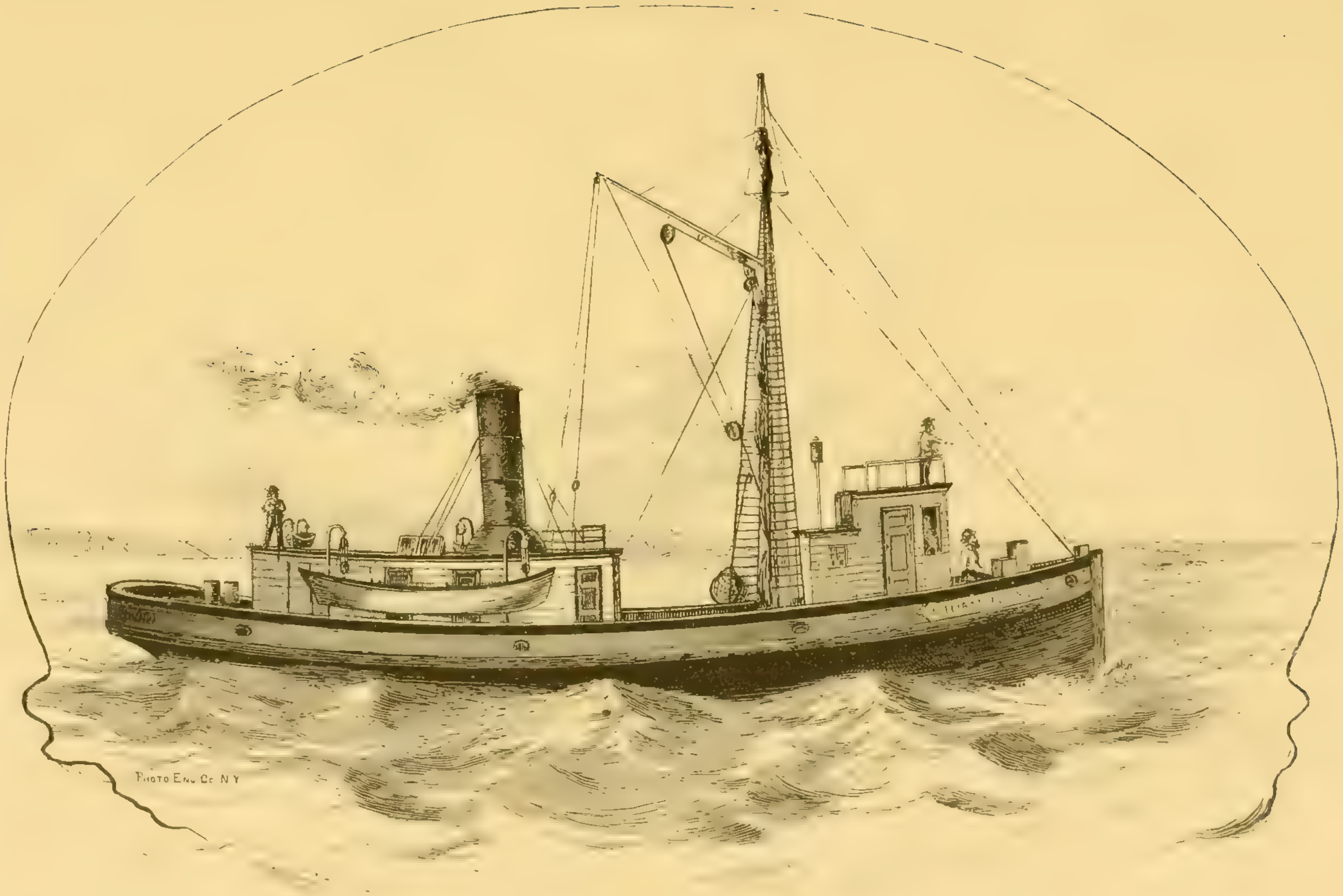


PHOTO ENG. CO. N Y

THE MENHADEN FISHERY.

Menhaden steamer cruising for fish. (Sect. v, vol. i, p. 334.)

Drawing by Capt B F Conklin.

PLATE 87.

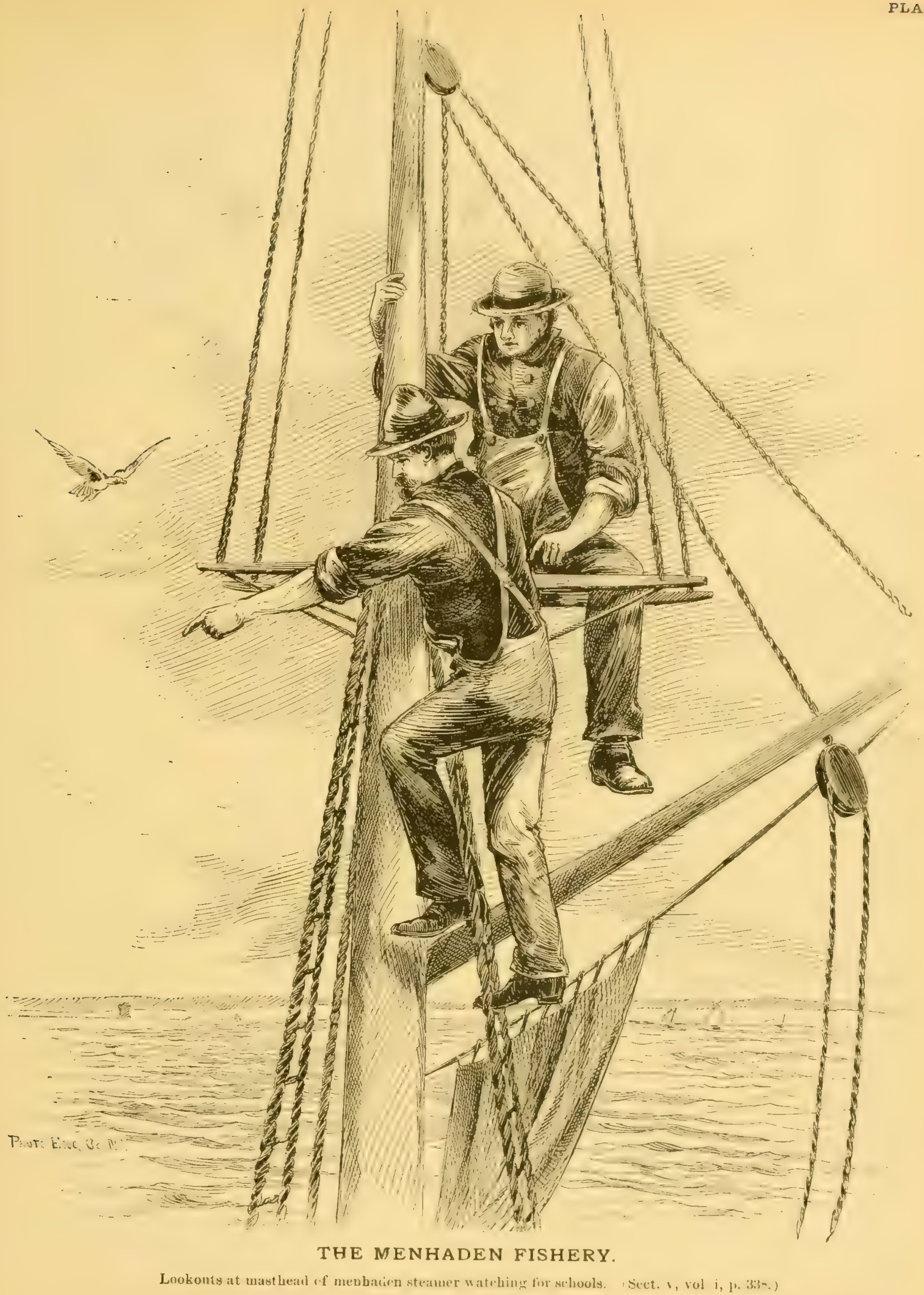
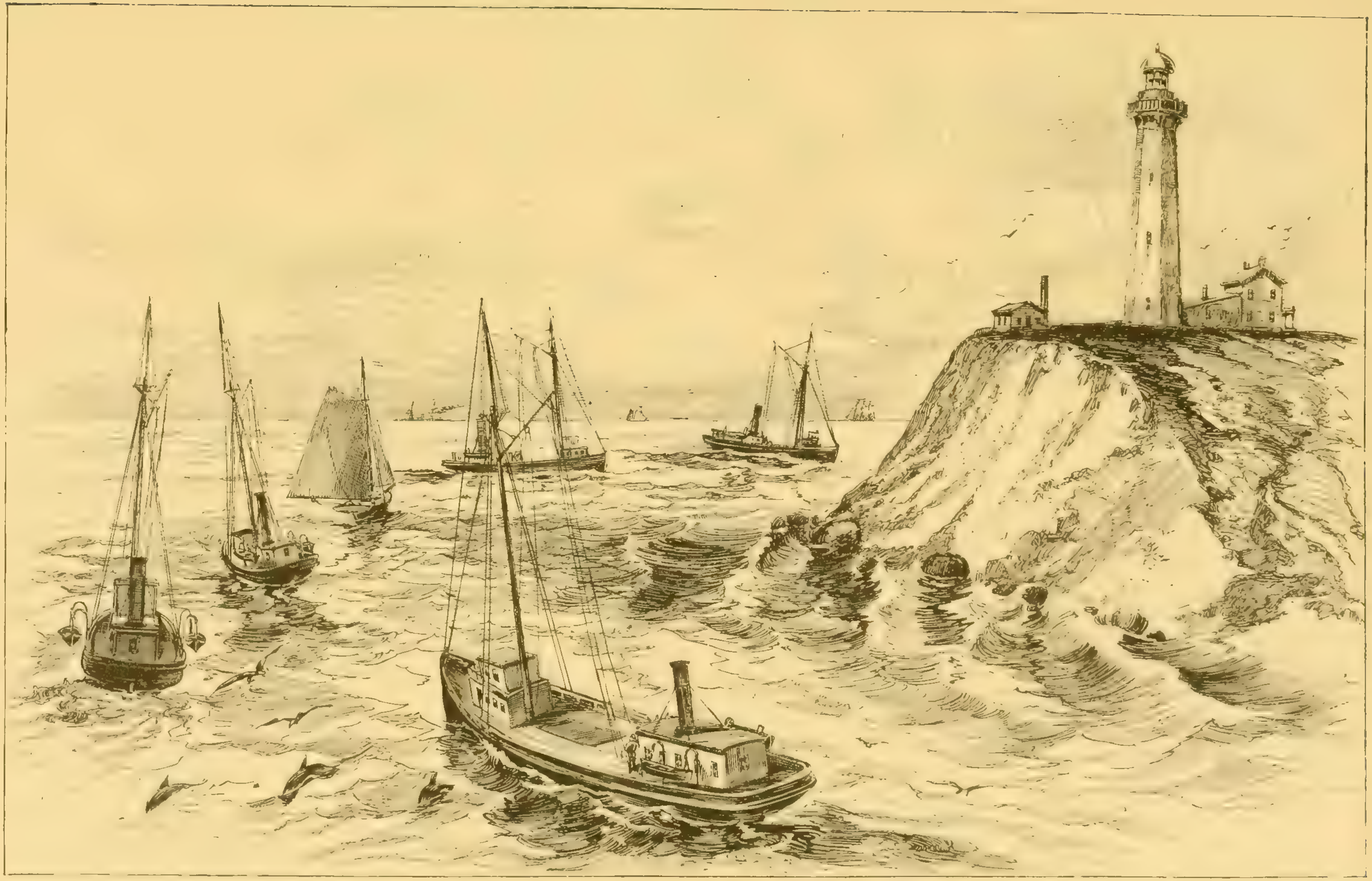


Photo. Eng. Co. N.Y.

THE MENHADEN FISHERY.

Lookouts at masthead of menhaden steamer watching for schools. (Sect. V, vol. i, p. 338.)

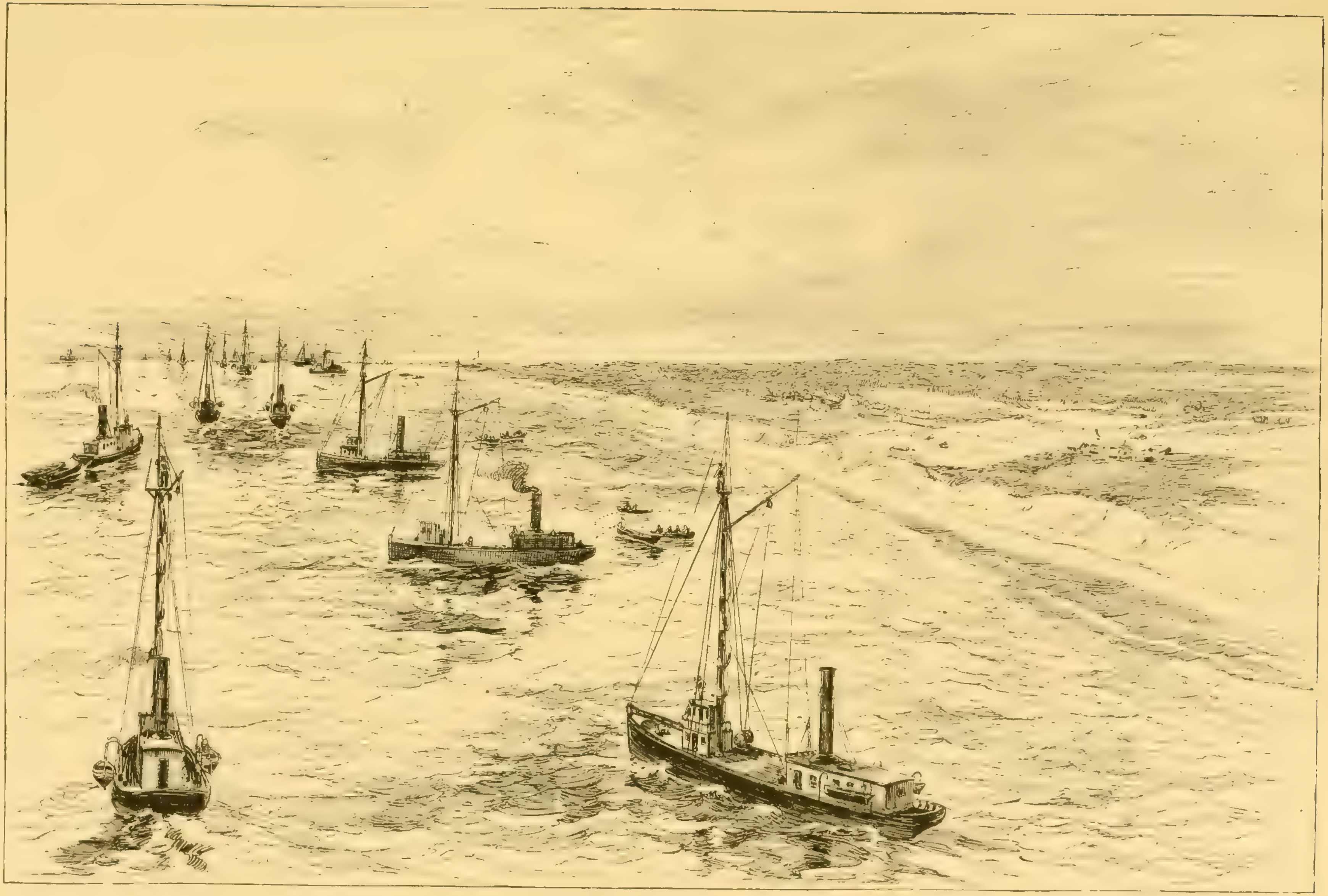
From sketch by J. S. Ryder.



THE MENHADEN FISHERY.

Fleet of menhaden steamers en route to fishing grounds on south side of Long Island. (Sect. v, vol. i, p. 338.)

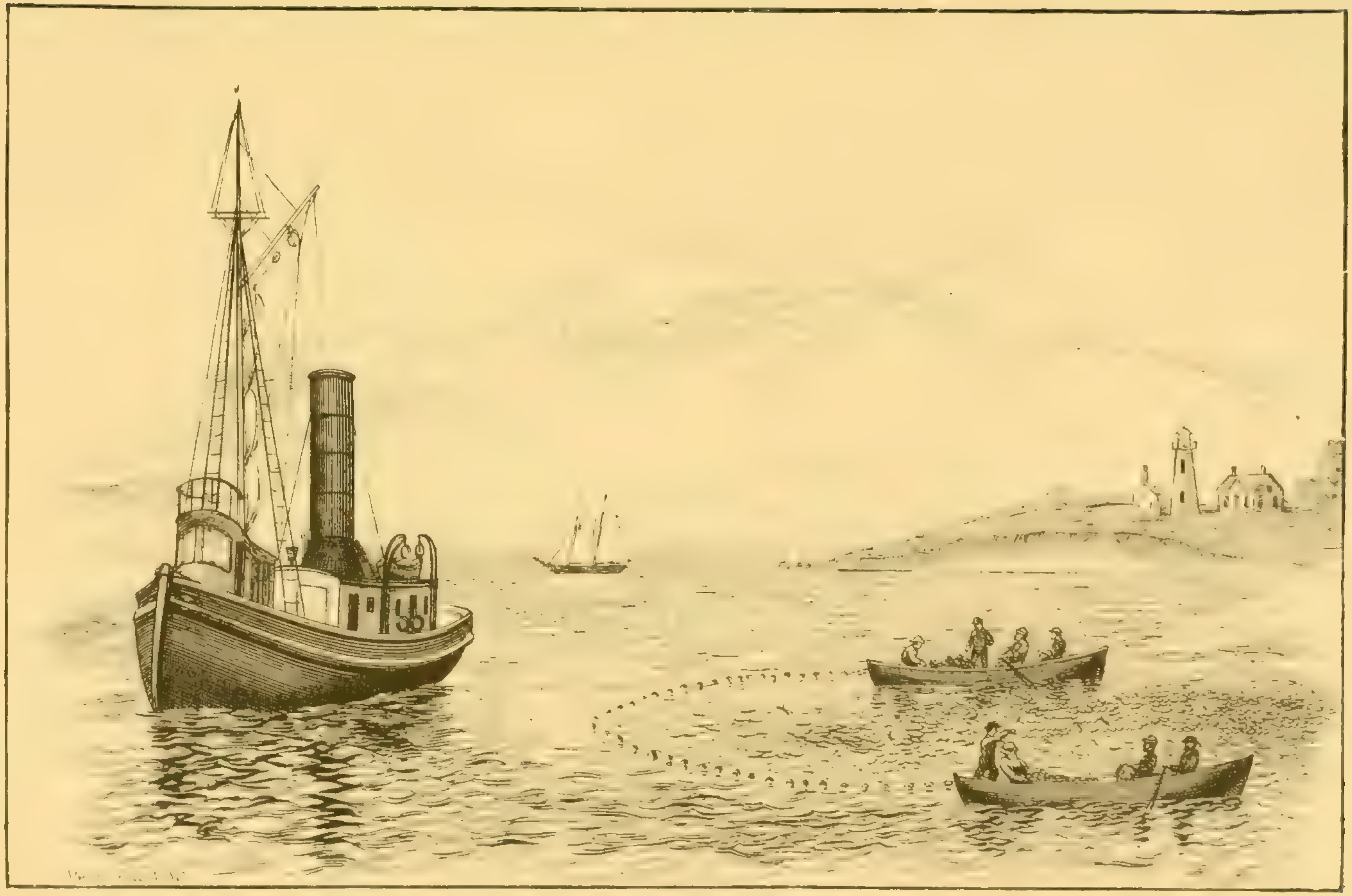
From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Fleet of menhaden steamers on the fishing grounds; seining crews at work. (Sect. v, vol. i, p. 338.)

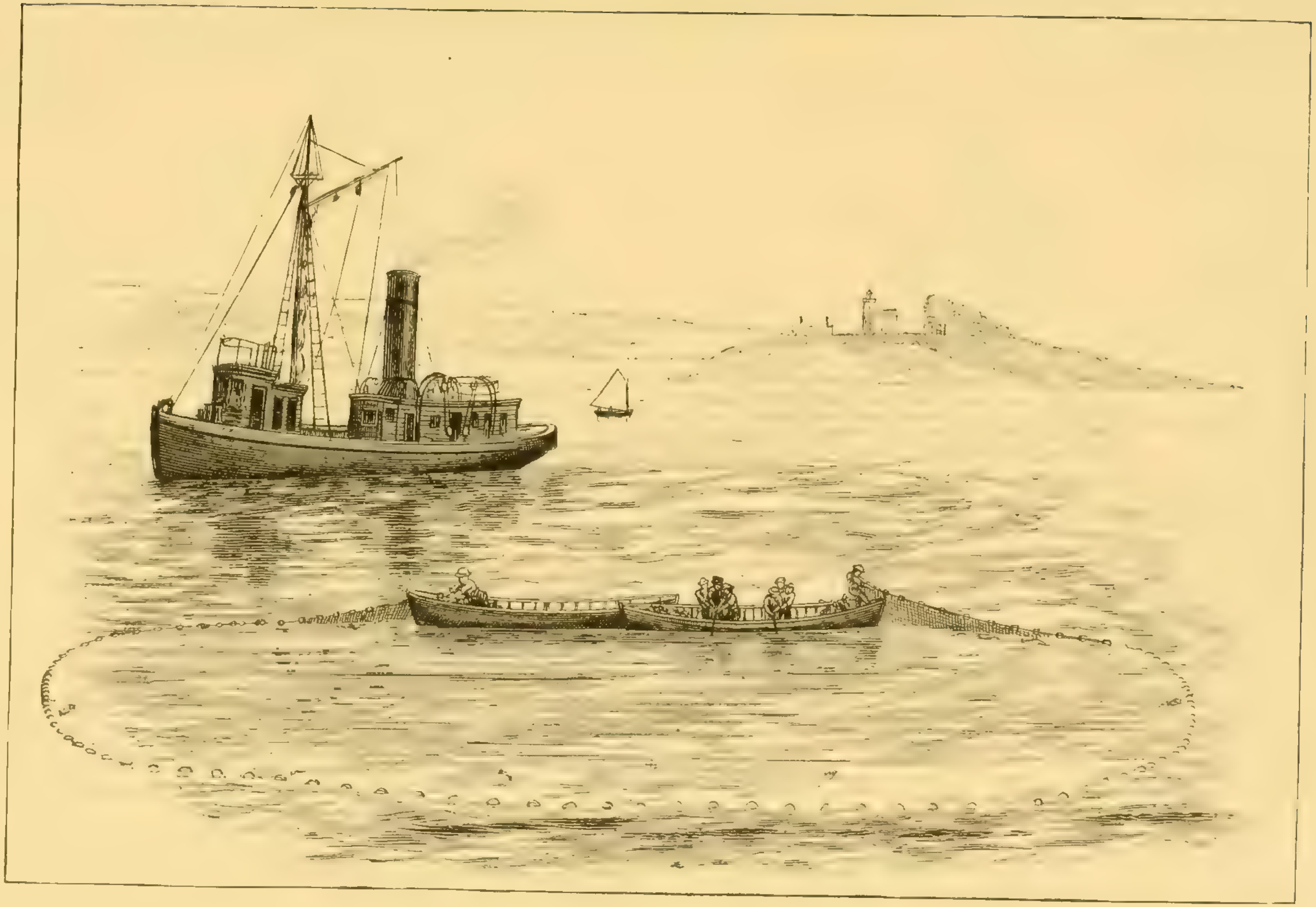
From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Steamer's crew surrounding menhaden with a purse-seine. (Sect. V, vol. I, pp. 337-339.

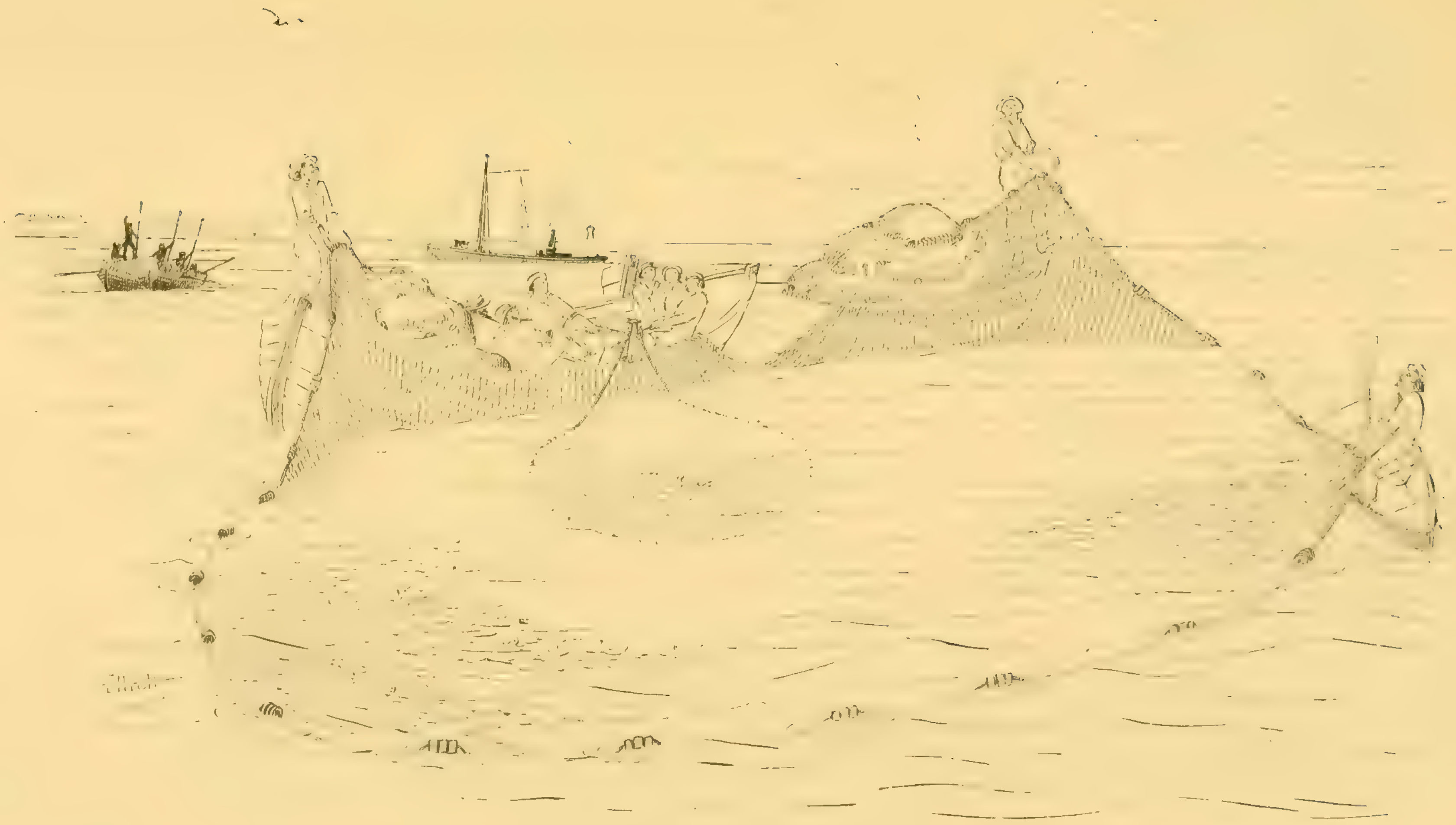
From sketch by Capt. B. F. Conklin



THE MENHADEN FISHERY.

Pursing the seine around a school of menhaden. (Sect. v, vol. i, pp. 337–339.)

From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Menhaden fishermen at work; pursing of the seine nearly completed. (Sect. v, vol. i, p. 339.)

Drawing by H. W. Elliott.

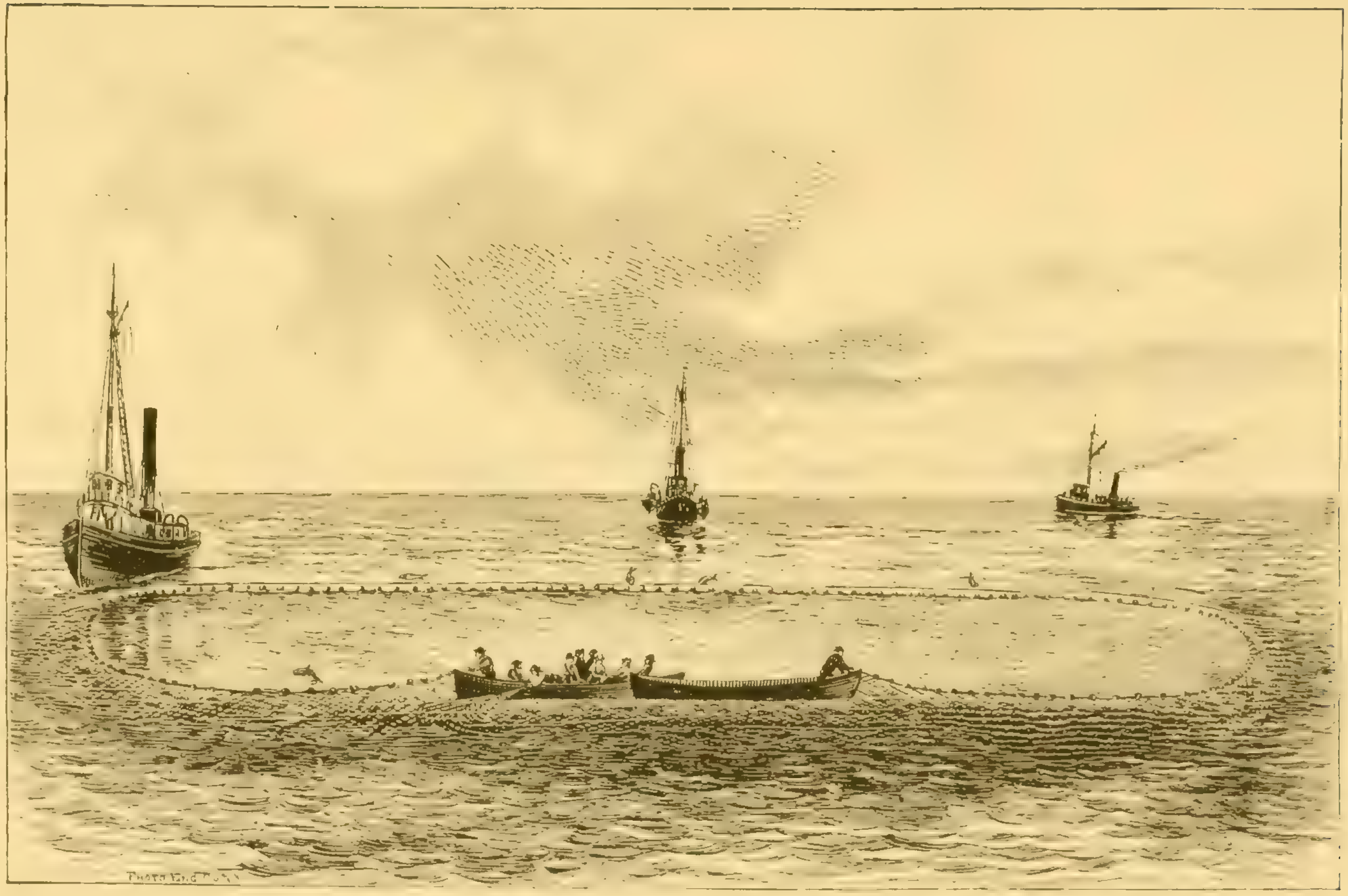


Photo Eng Co N.Y.

THE MENHADEN FISHERY.

School of menhaden surrounded with purse-seine and the fish striking the net. (Sect. v. vol. i, p. 339.)

From sketch by Capt. B. F. Conklin.

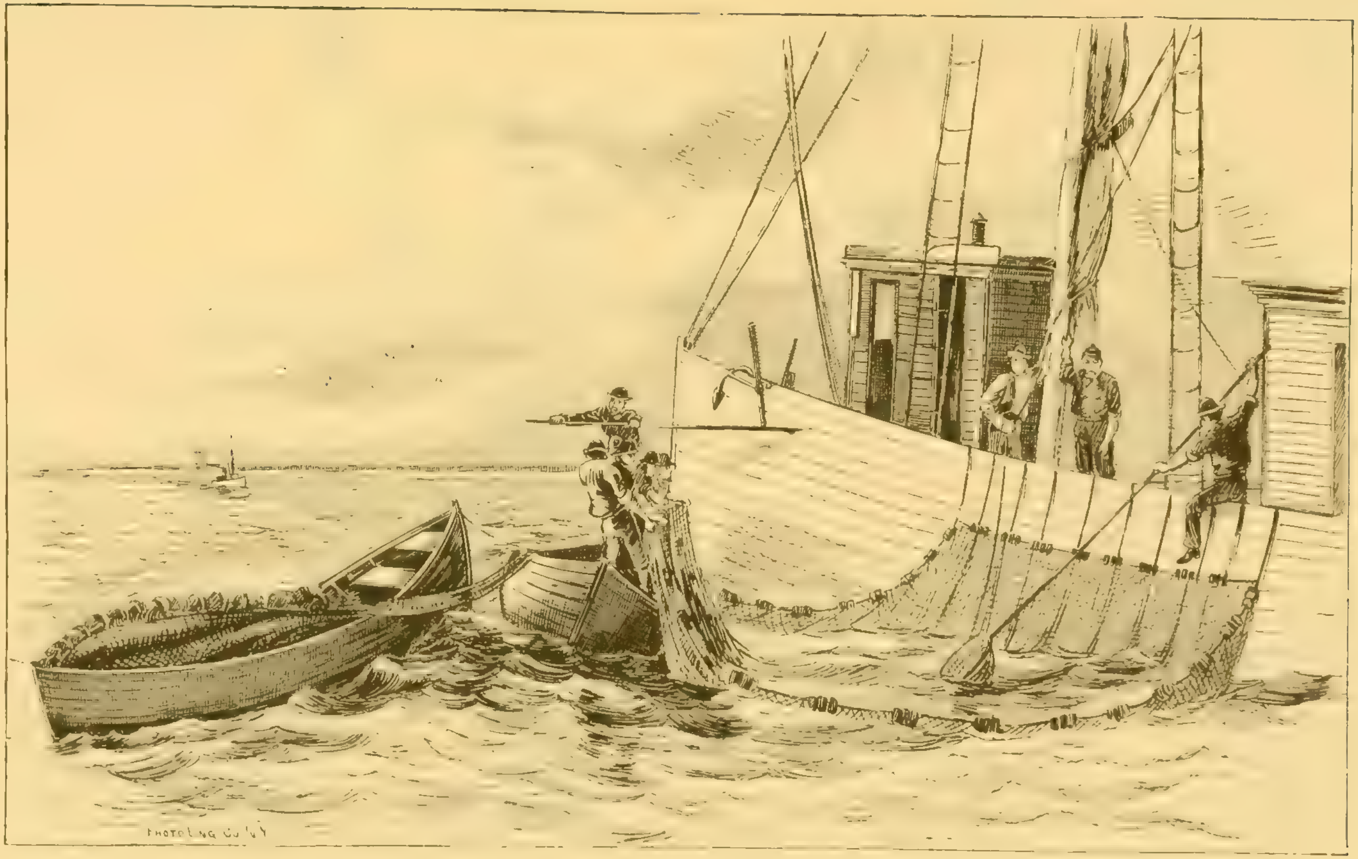
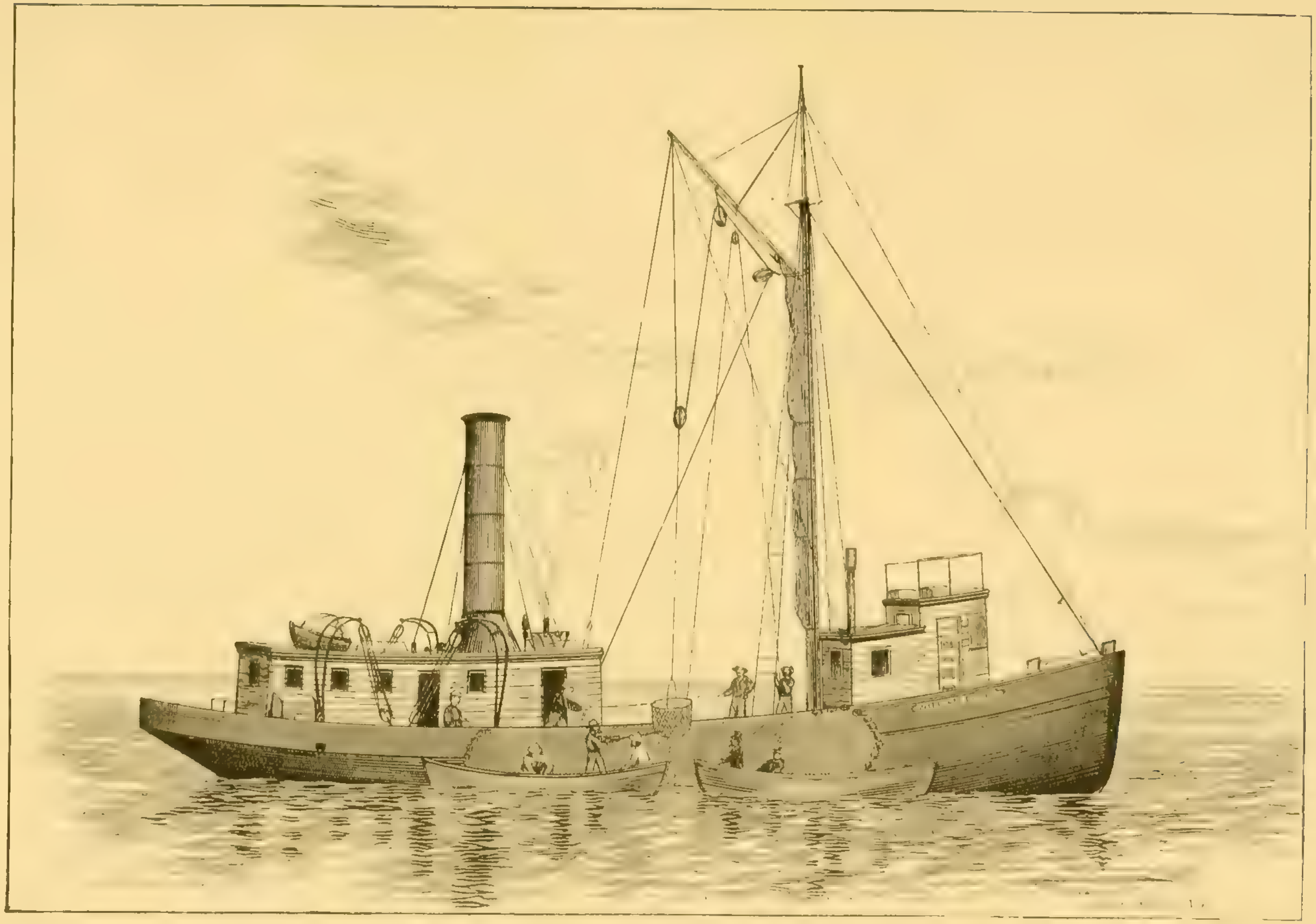


PHOTO.ENG.CO.N.Y.

THE MENHADEN FISHERY.

Bailing menhaden from purse-seine into steamer's hold. (Sect. v, vol. i, pp. 337, 340.)

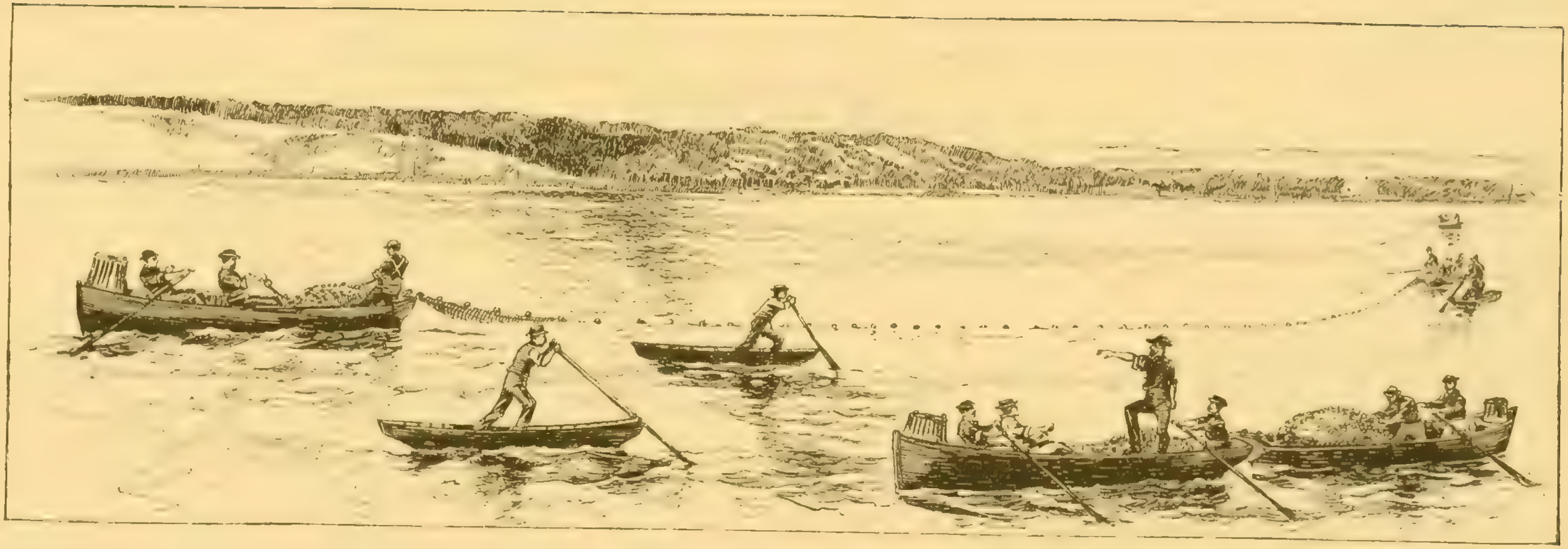
From sketch by J. S. Ryder



THE MENHADEN FISHERY.

Menhaden steamer bailing in the catch. (Sect. v, vol. i, p. 340.)

From sketch by Capt. B. F. Conklin.

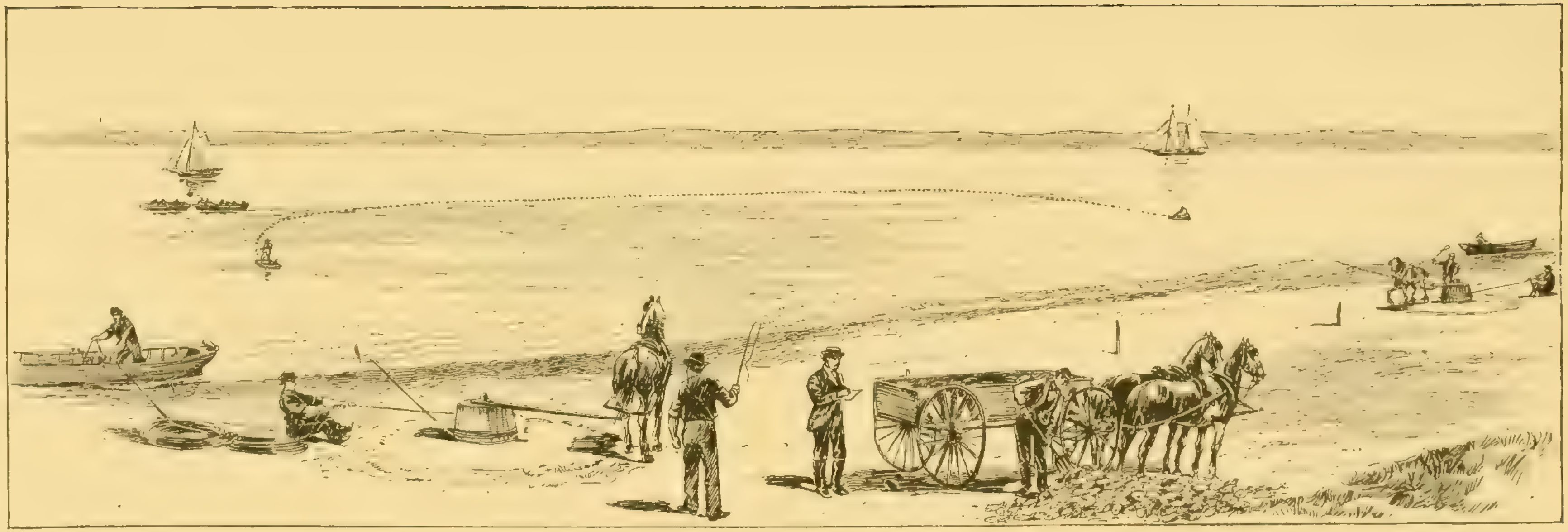


THE MENHADEN FISHERY.

Haul-seine fishing at Long Island, 1790 to 1850; setting the seine. (Sect. v, vol. i, pp. 311, 368, 371.)

From sketch by Capt. B. F. Conklin.

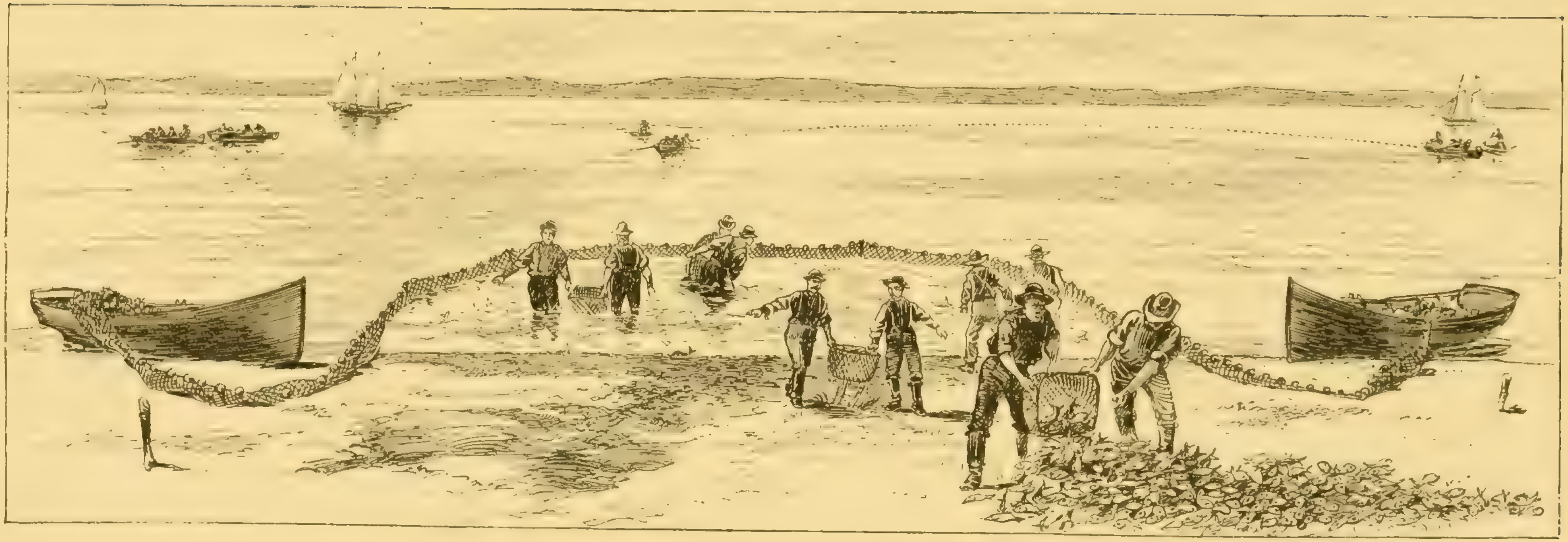
PLATE 97.



THE MENHADEN FISHERY.

Haul-seine fishing at Long Island, 1790 to 1850; hauling the seine. (Sect. v, vol. i, pp. 341, 368, 371.)

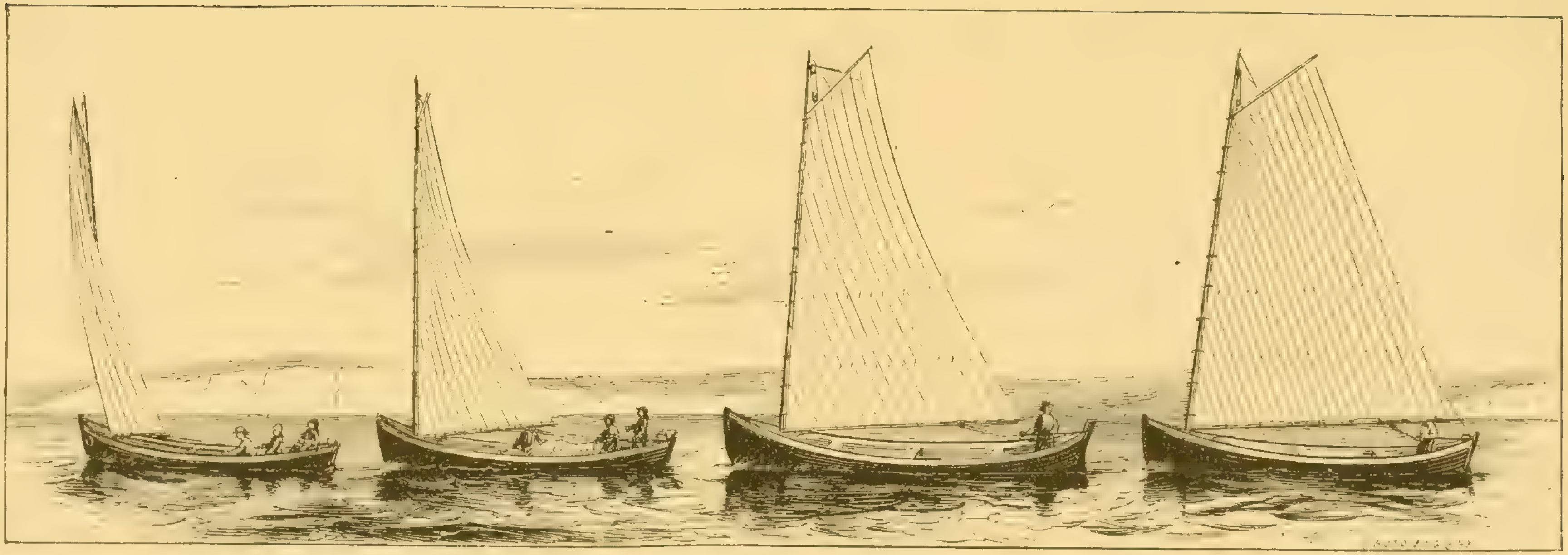
From sketch by Capt. B. F. Conklin



THE MENHADEN FISHERY.

Haul-seine fishing at Long Island, 1790 to 1850; taking out the fish. (Sect. v, vol. i, pp. 341, 368, 371.)

From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Purse and mate boats, with two carry-aways, starting for the fishing grounds. (Sect. v, vol. i, pp. 334, 368.)

From sketch by Capt. P. F. Conklin.

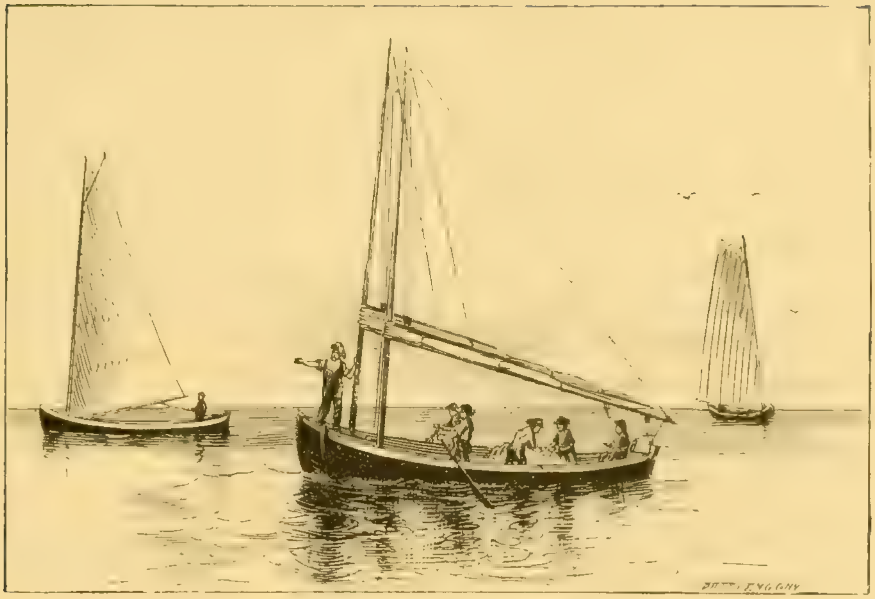


Fig 1 —Going down to the fish.

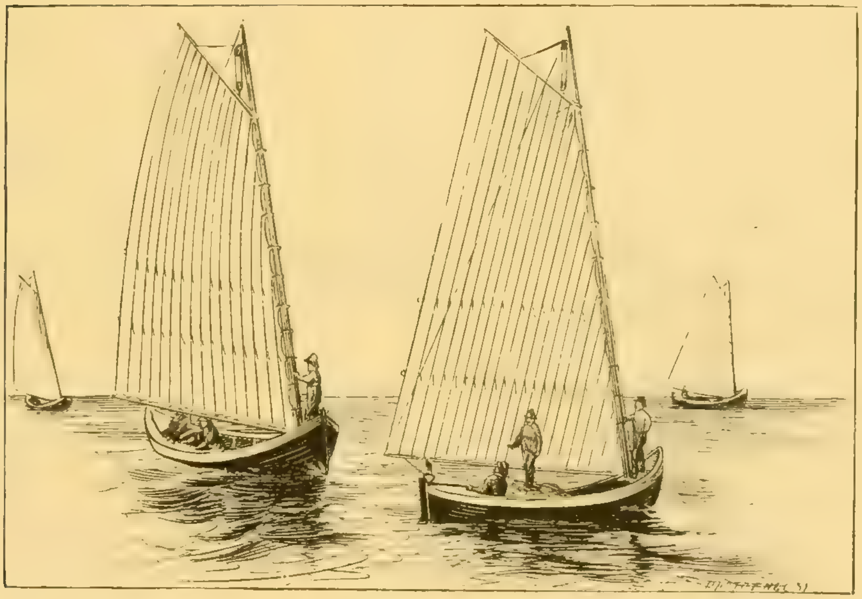
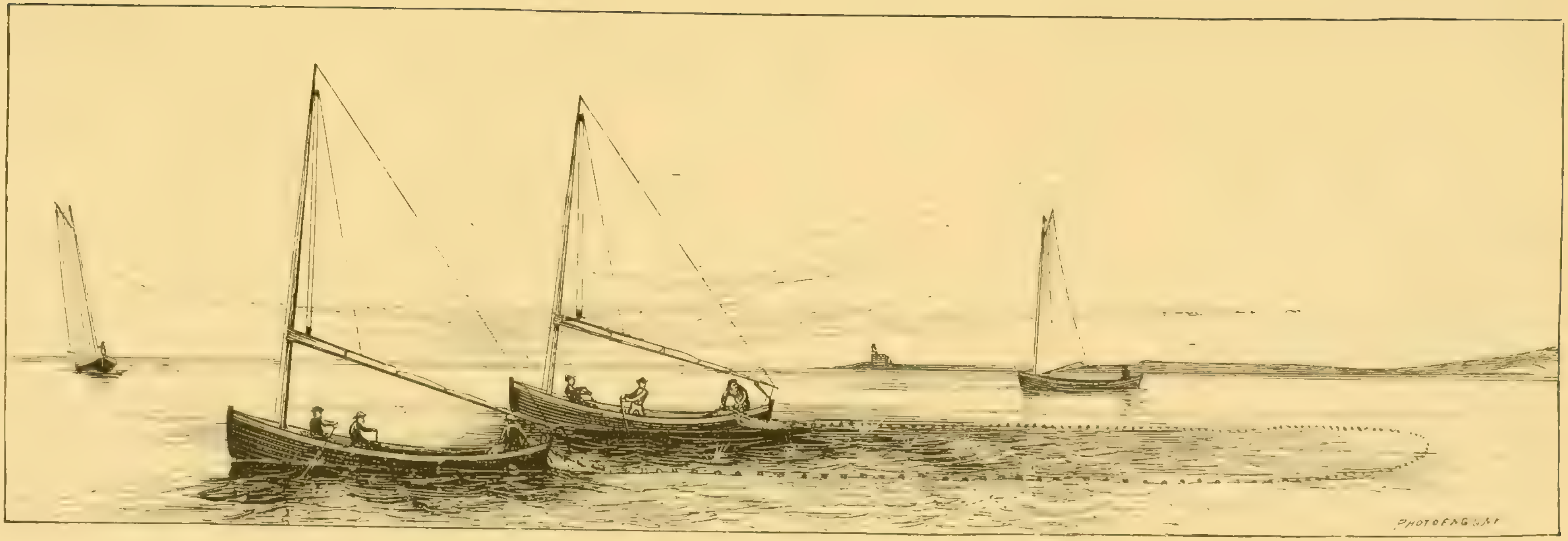


Fig. 2 —Working to windward of the fish.

THE MENHADEN FISHERY.

Purse and mate boats, and carry-away boats. (Sect. v, vol. i, pp. 334, 368.)

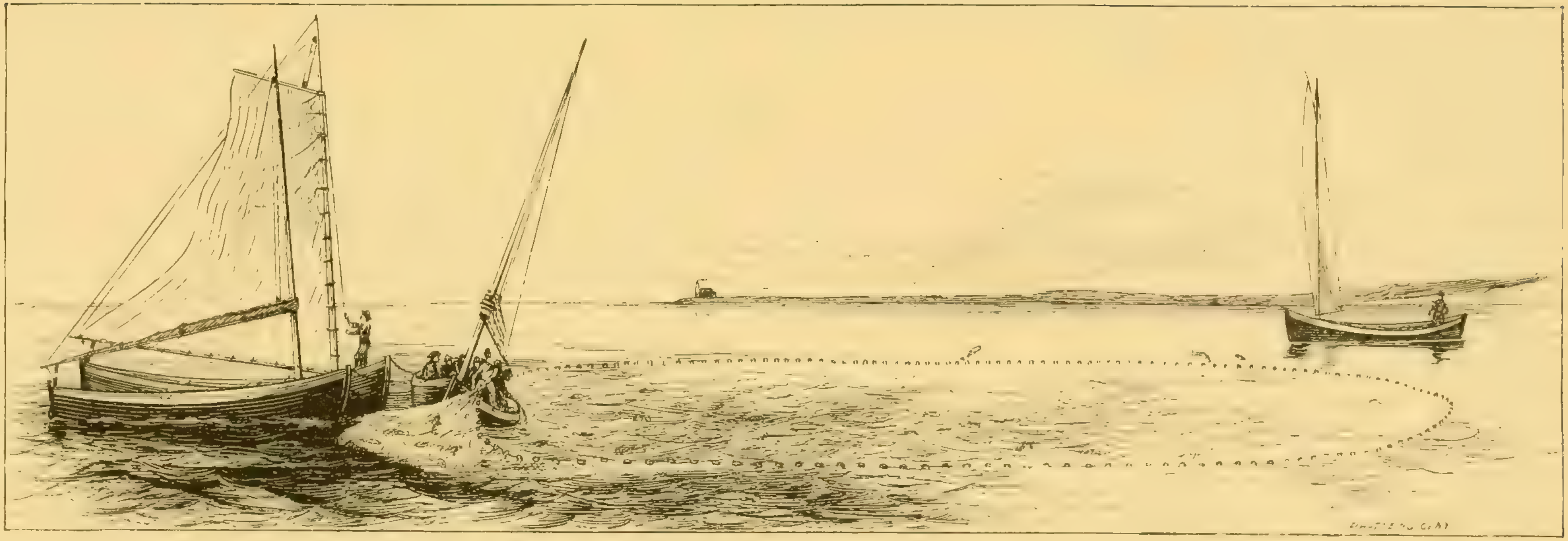
From sketches by Capt. B. F. Conklin.


PHOTOENG. N.Y.

THE MENHADEN FISHERY.

Purse and mate boats encircling a school; carry-away boats in waiting. (Sect. v, vol. i, pp. 334, 368.)

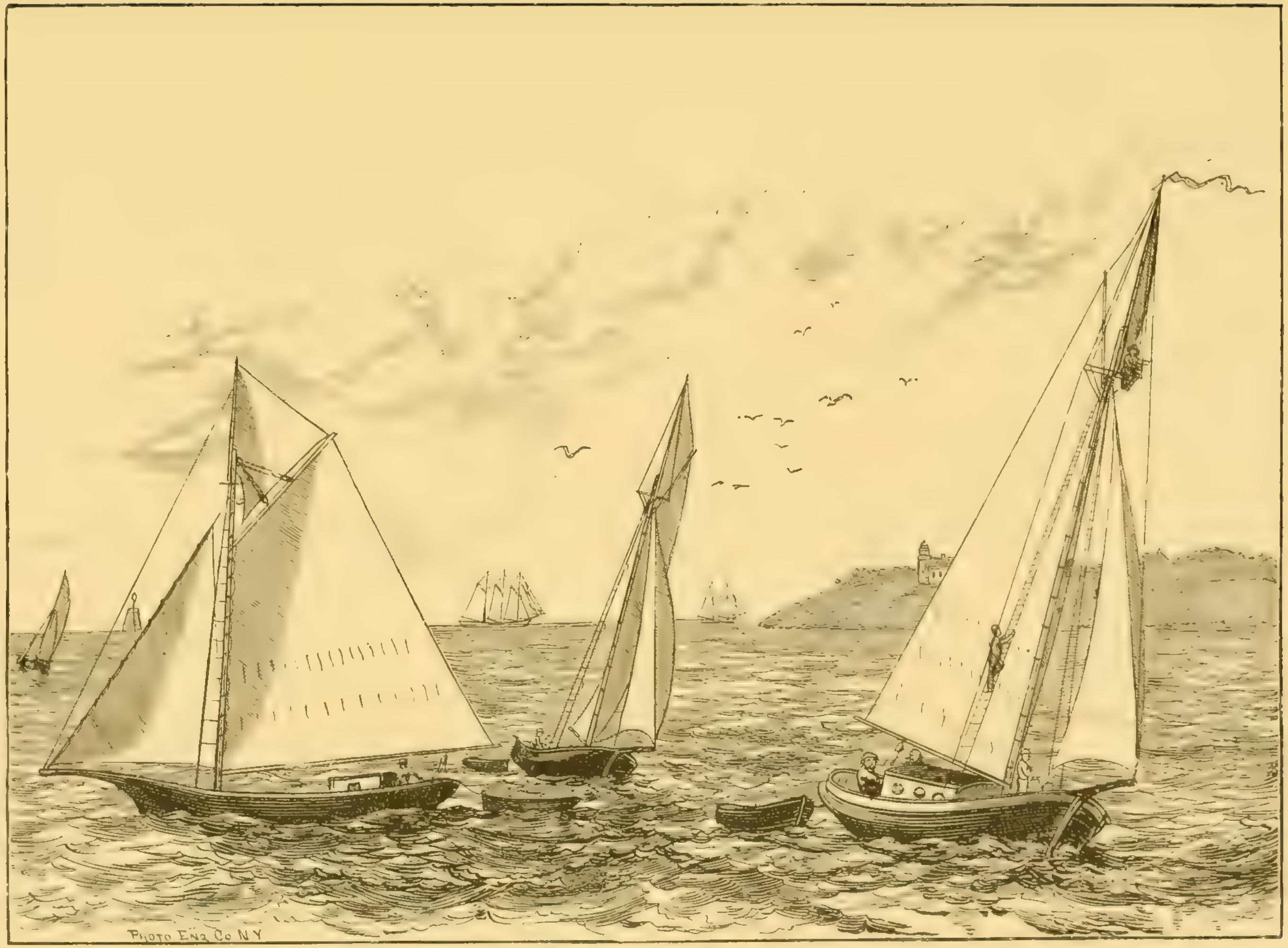
From sketch by Capt. B. F. Conklin



THE MENHADEN FISHERY.

Crew pursing the seine; the fish striking the net. (Sect. v, vol. i, pp. 334, 368.)

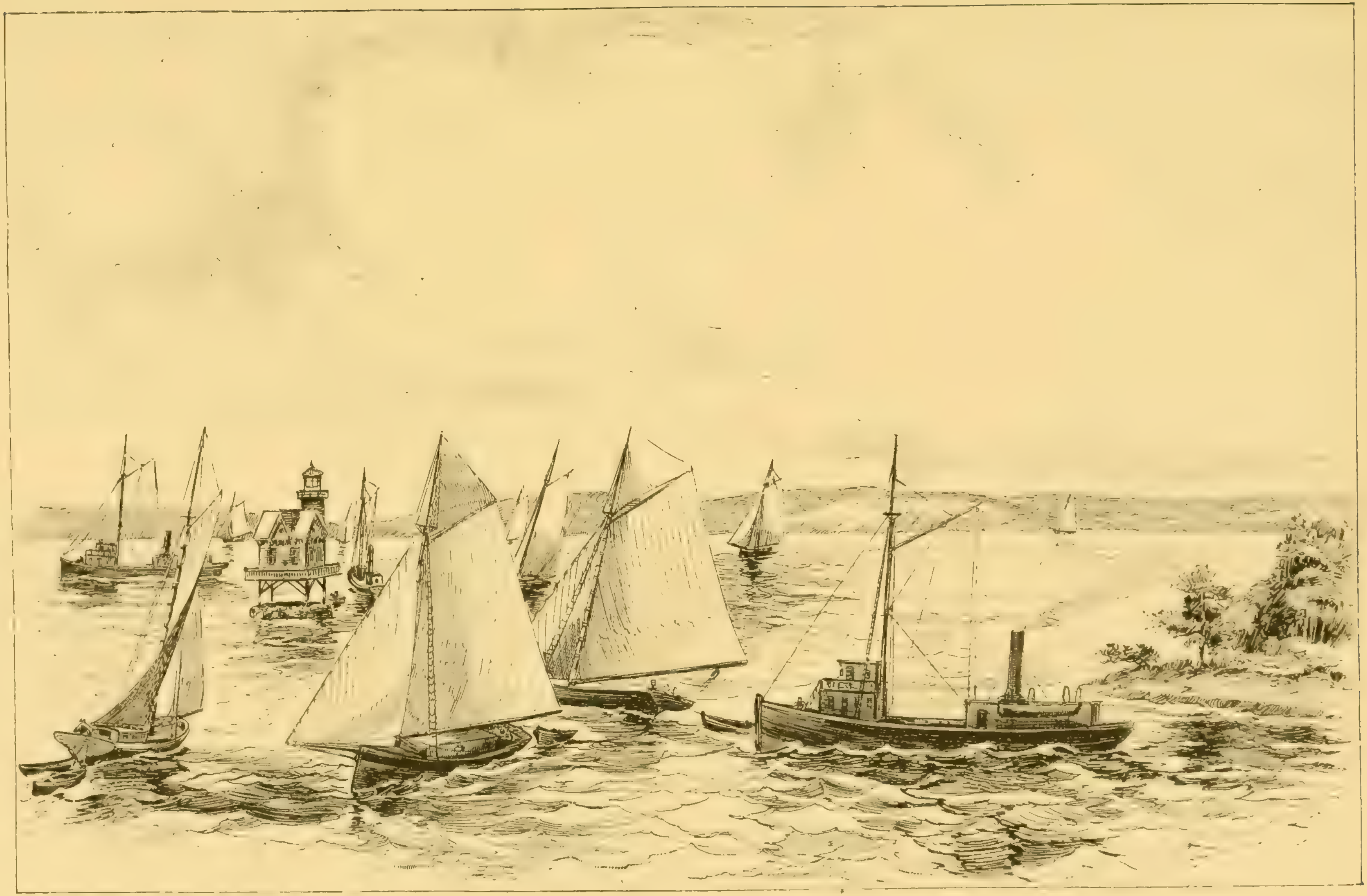
From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Sloops cruising for fish; one sloop is for crew to live on and to tow seine-boats, others to carry fish to factory. (Sect. v, vol. i, pp. 334, 368.)

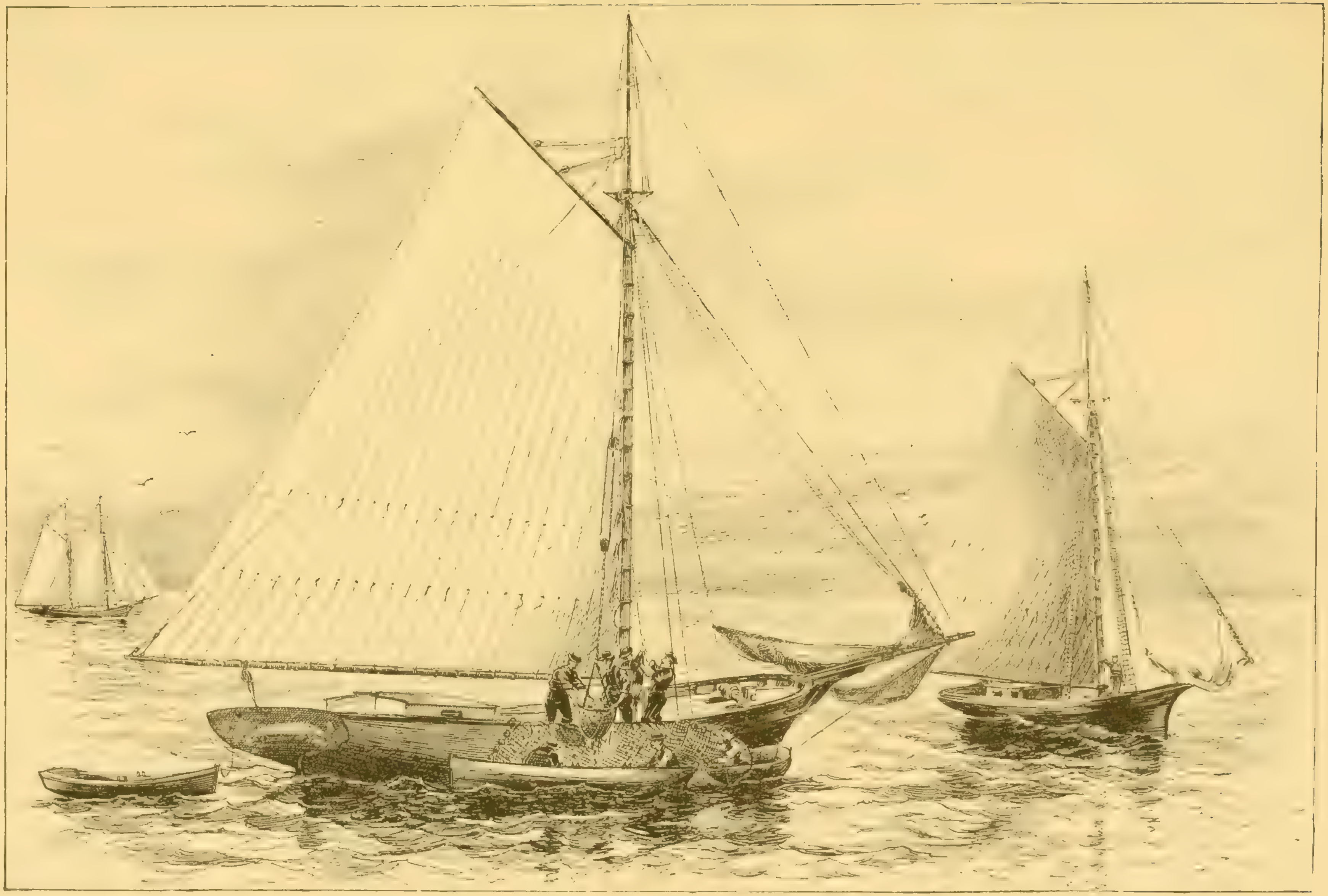
From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Menhaden sloops and steamers in Gardiner's Bay, Long Island. (Sect. v, vol. i, p. 397.)

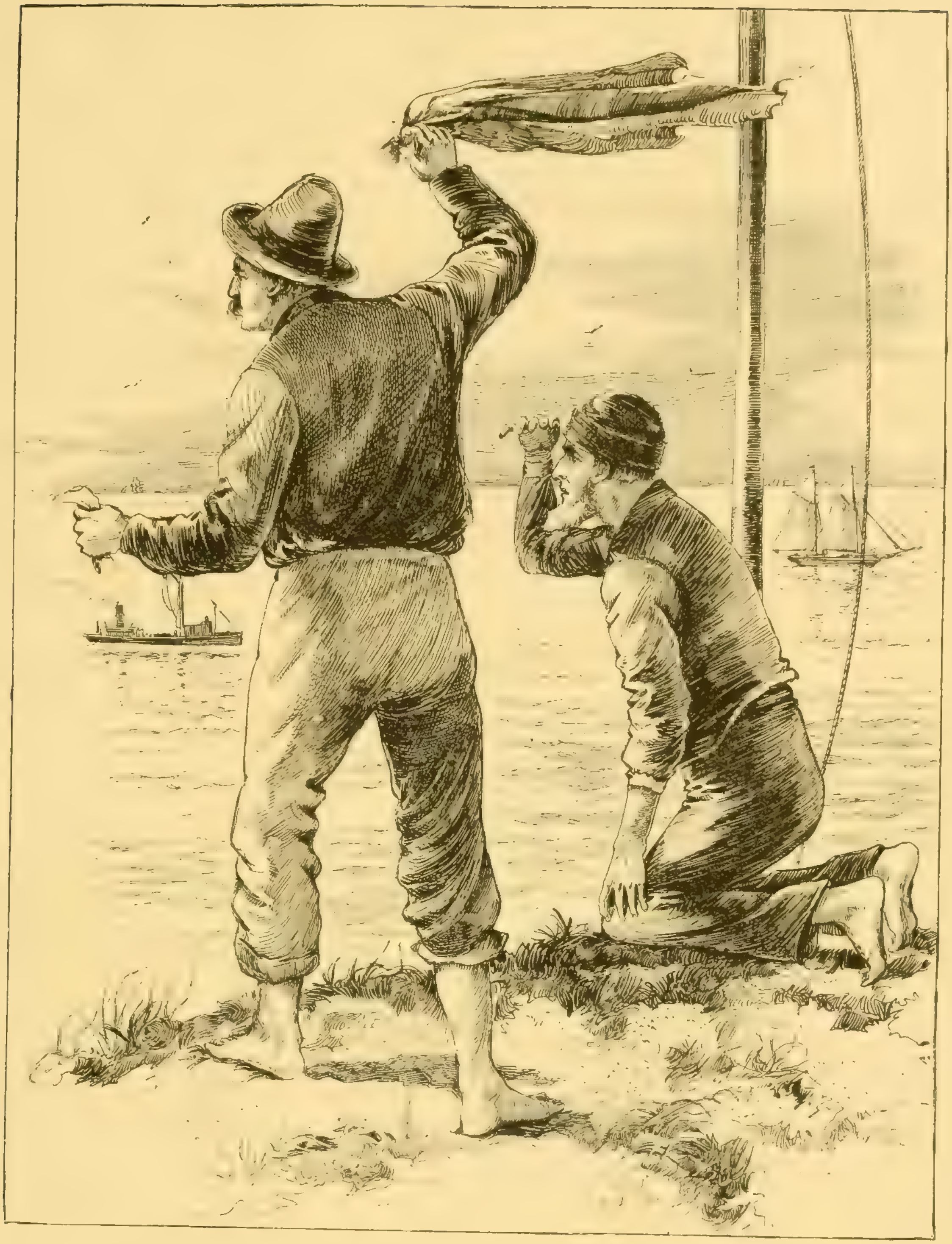
From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Carry-away sloops; bailing in the catch. (Sect. v, vol. i, pp. 376, 377.)

From sketch by Capt. B. F. Conklin.



THE MENHADEN FISHERY.

Fishermen signalling to shore crews the approach of a school of fish. (Sect. v, vol. i, p. 367.)

From sketch by Capt. B. F. Conklin.

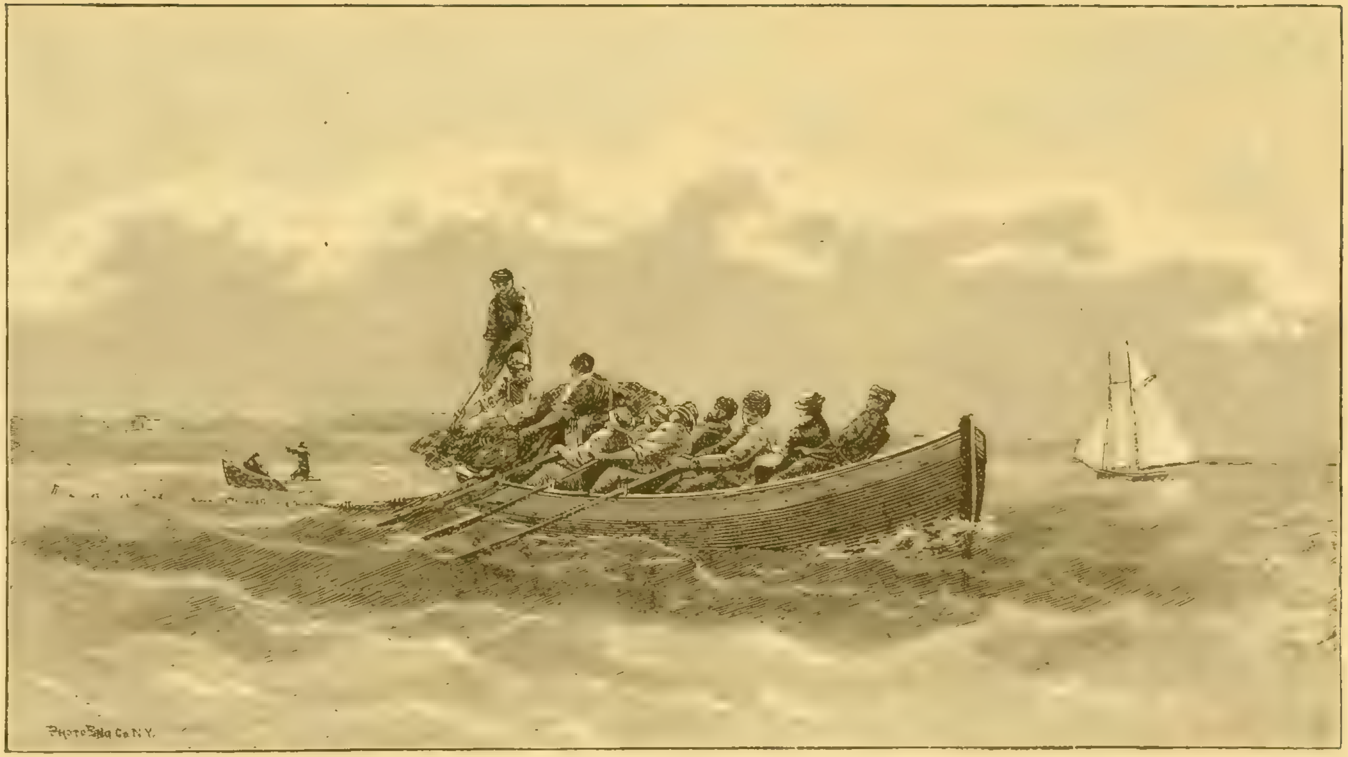
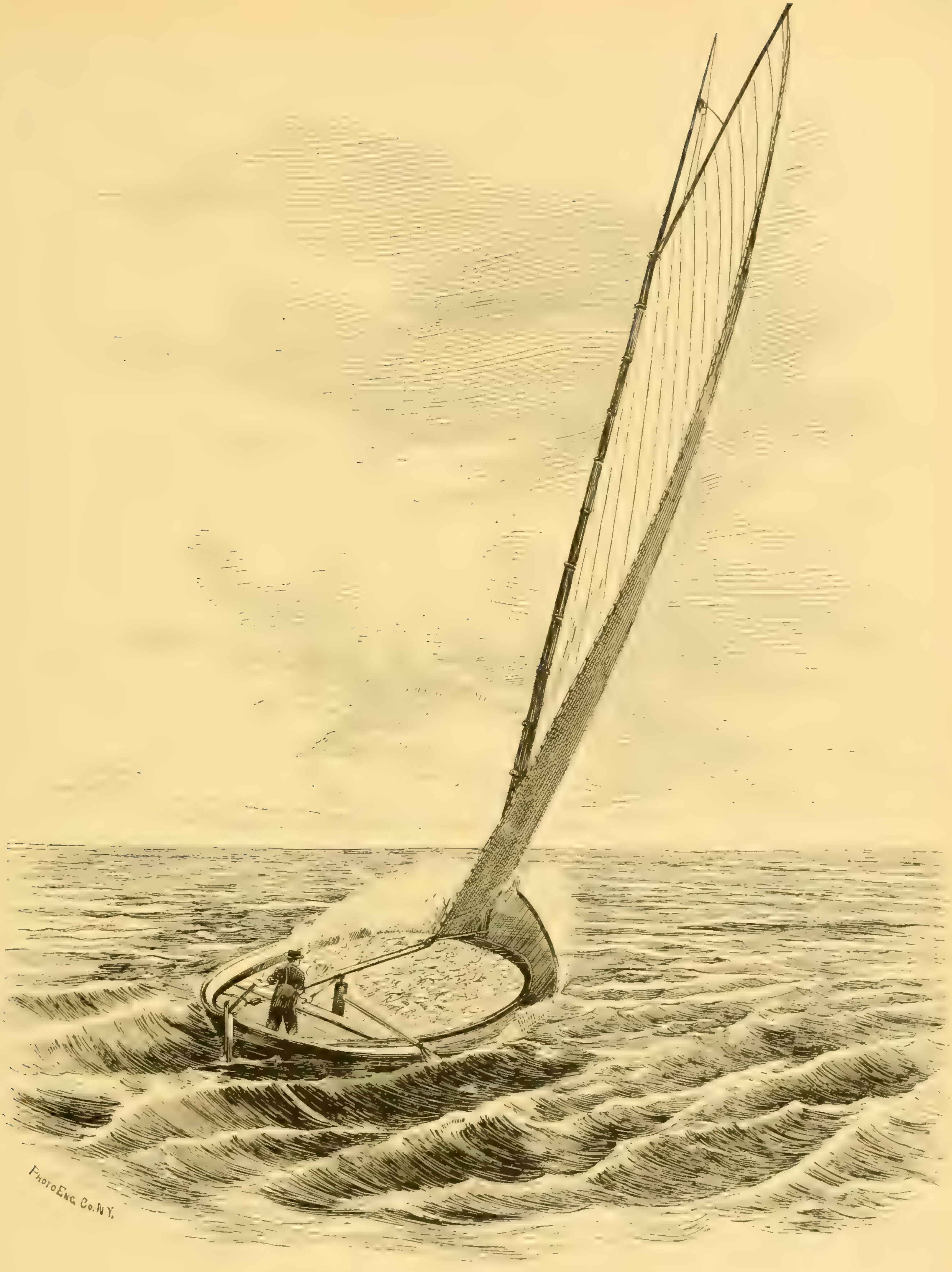


PHOTO-ENG. CO. N.Y.

THE MENHADEN FISHERY.

Crew of schooner, in old-style seine-boat, throwing the purse-seine around a school of fish. (Sect. v, vol. i, pp. 336, 338.)

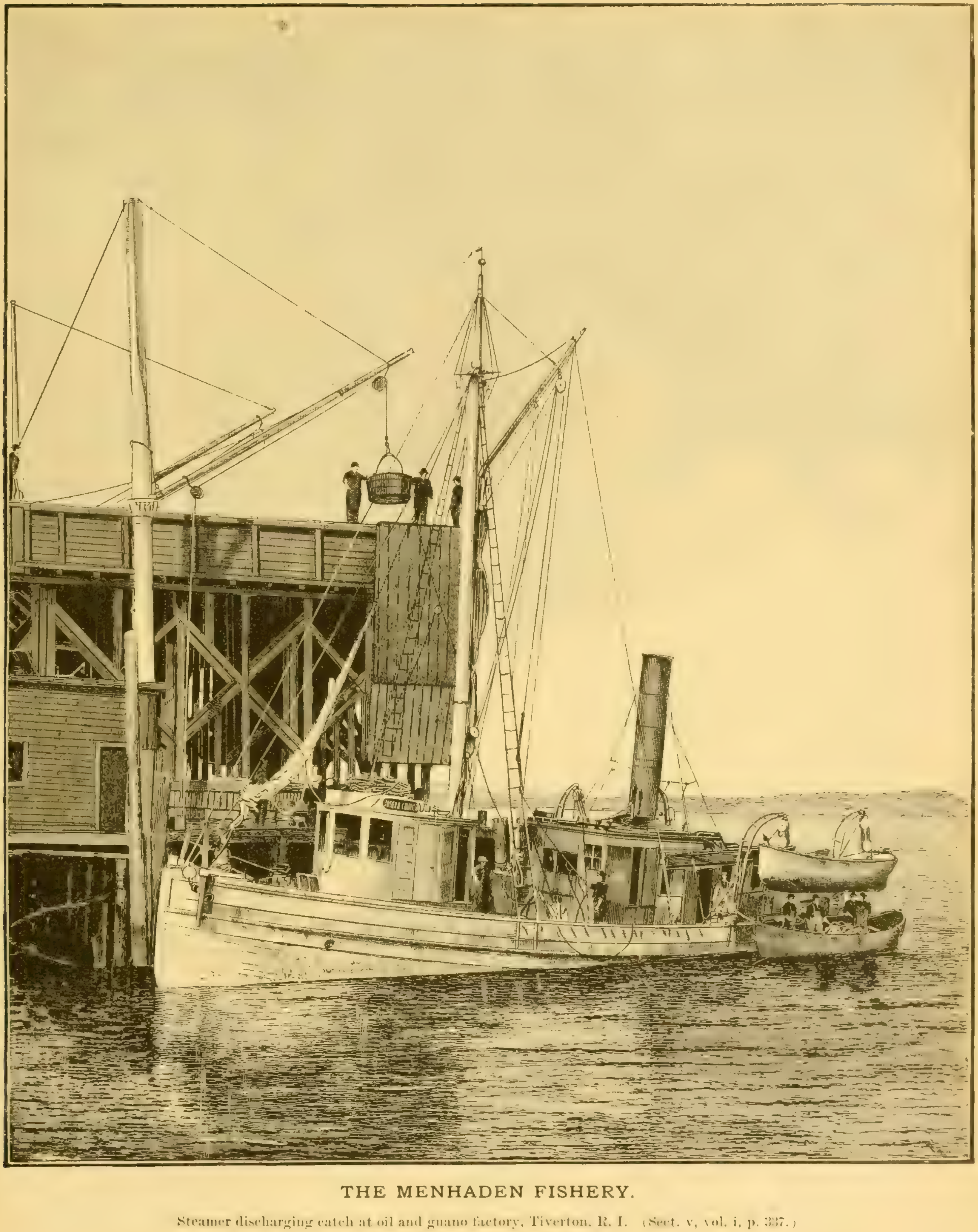
From sketch by J. S. Ryder


PhotoEng Co. N.Y.

THE MENHADEN FISHERY.

Carry-away boat with haul of fish on the way to oil factory. (Sect. v, vol. i, p. 373.)

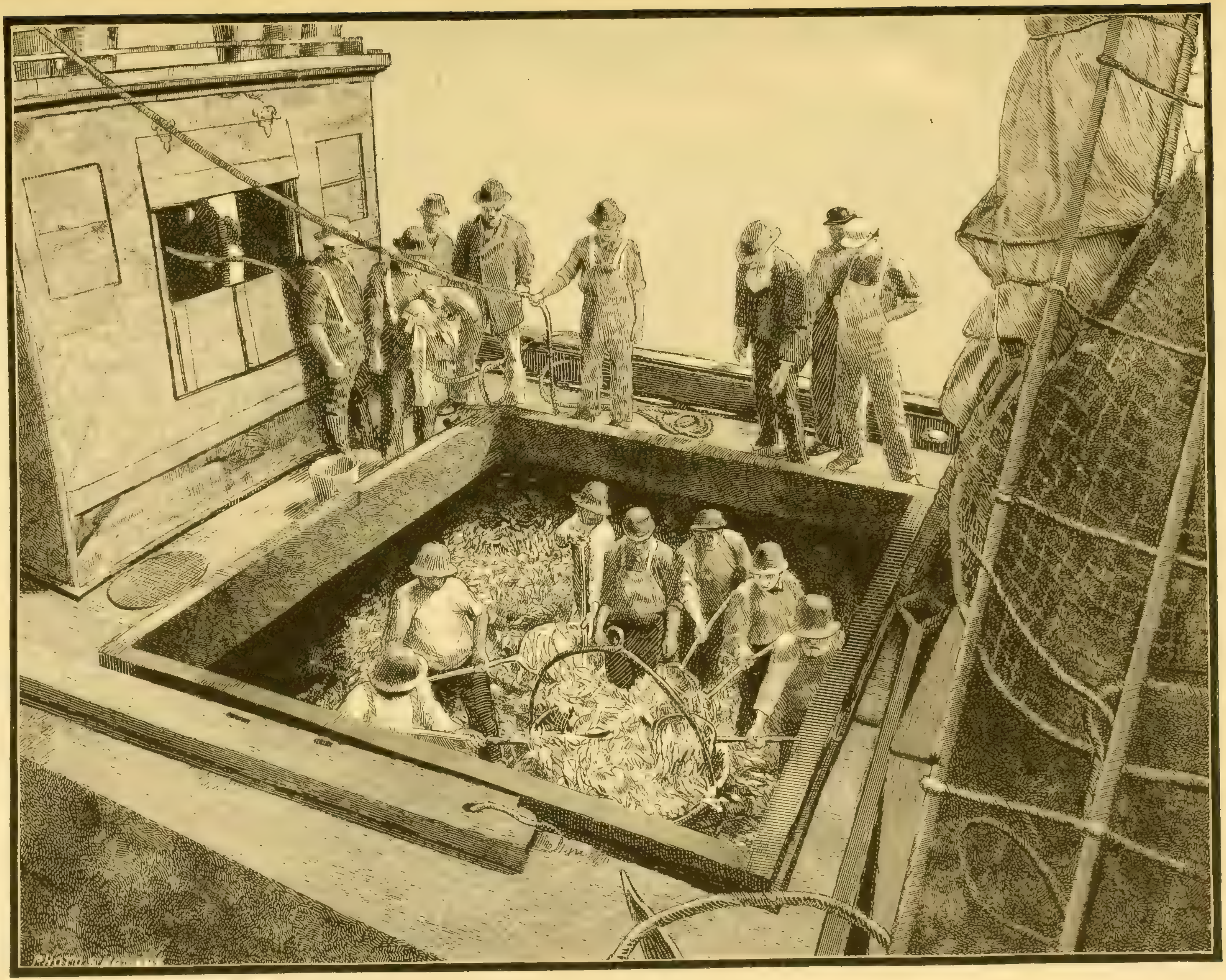
Sketch by Capt. B. F. Conklin



THE MENHADEN FISHERY.

Steamer discharging catch at oil and guano factory, Tiverton, R. I. (Sect. v, vol. i, p. 337.)

From a photograph by T. W. Smillie.



THE MENHADEN FISHERY.

Gang of Portuguese in hold of steamer filling the hoisting-tubs. (Sect. v, vol. i, p. 337.)

From a photograph by T. W. Smillie.

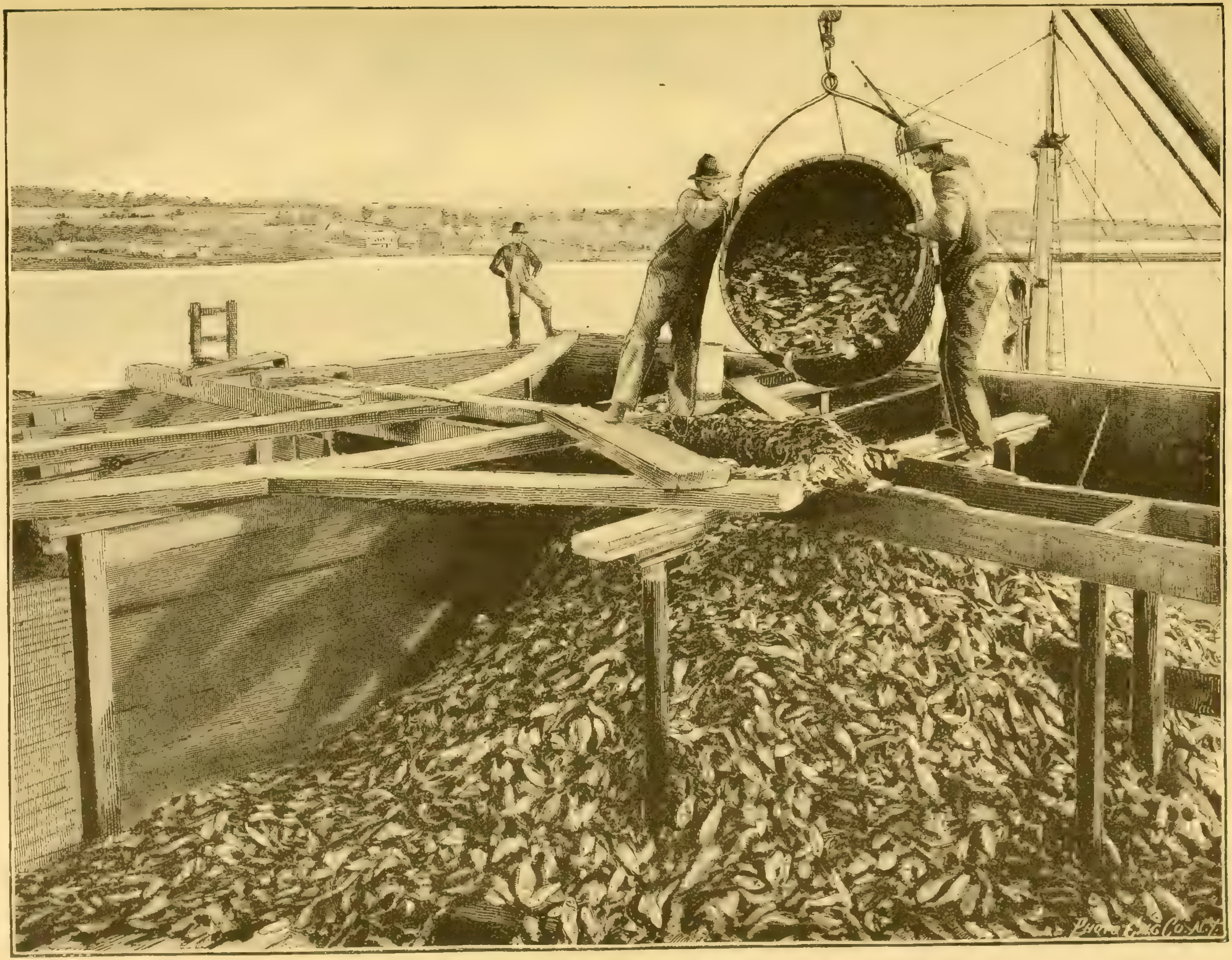
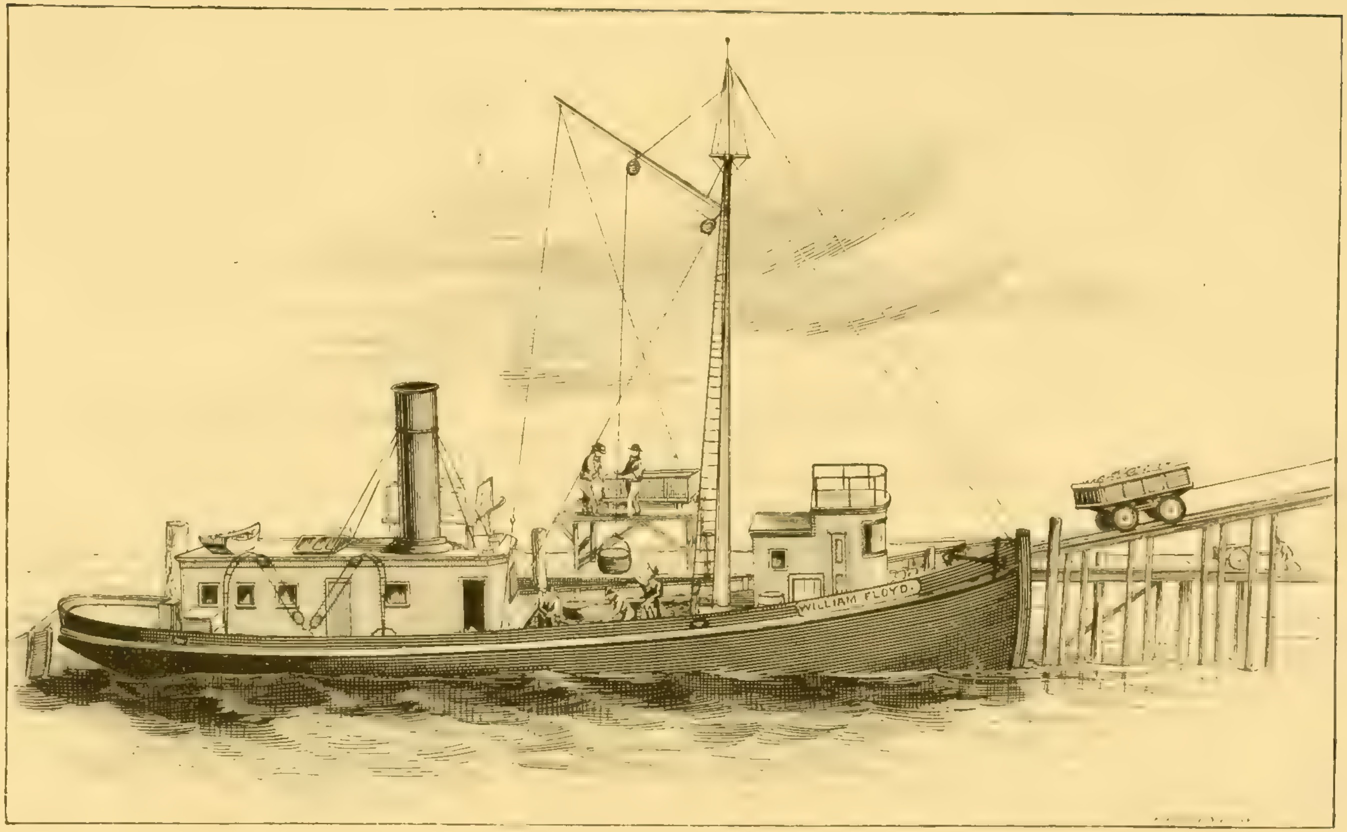


Photo. Eng. Co. N.Y.

THE MENHADEN FISHERY.

Fish pens on top floor of factory. The fish are led through a trough to the cooking-tanks. (Sect. v, vol. 1, p. 337.)

From a photograph by T. W. Smillie.


WILLIAM FLOYD.

THE MENHADEN FISHERY.

Steamer discharging its catch at oil and guano factory. Inclined railway to carry fish to cooking-tanks. (Sect. v, vol. i, p. 337.)

Sketch by Capt. B. F. Conklin

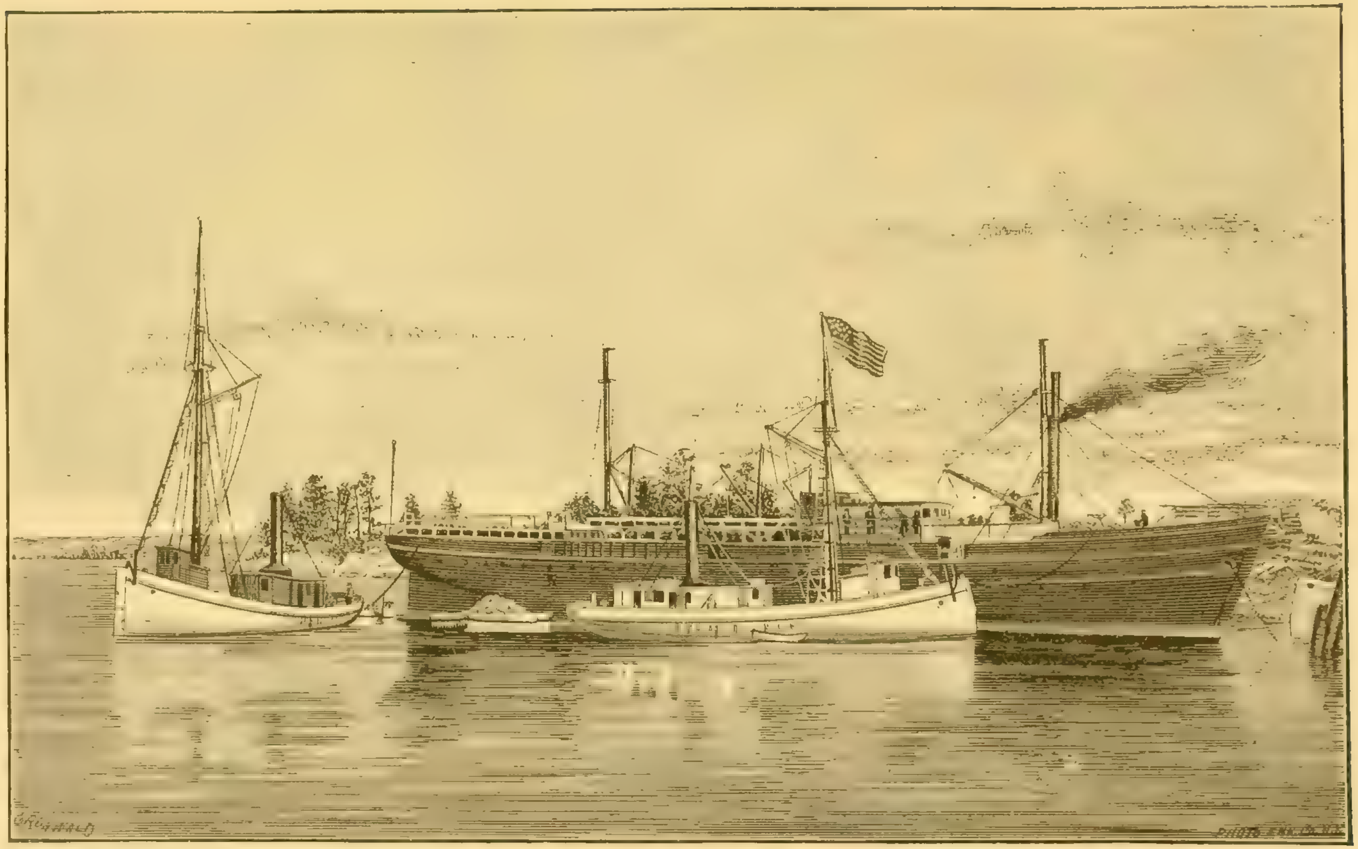
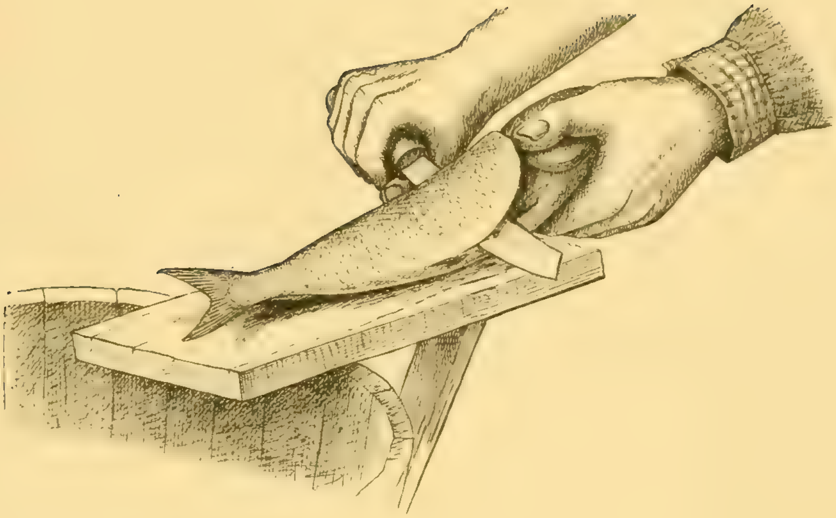


PHOTO-ENG. CO. N.Y.

THE MENHADEN FISHERY.

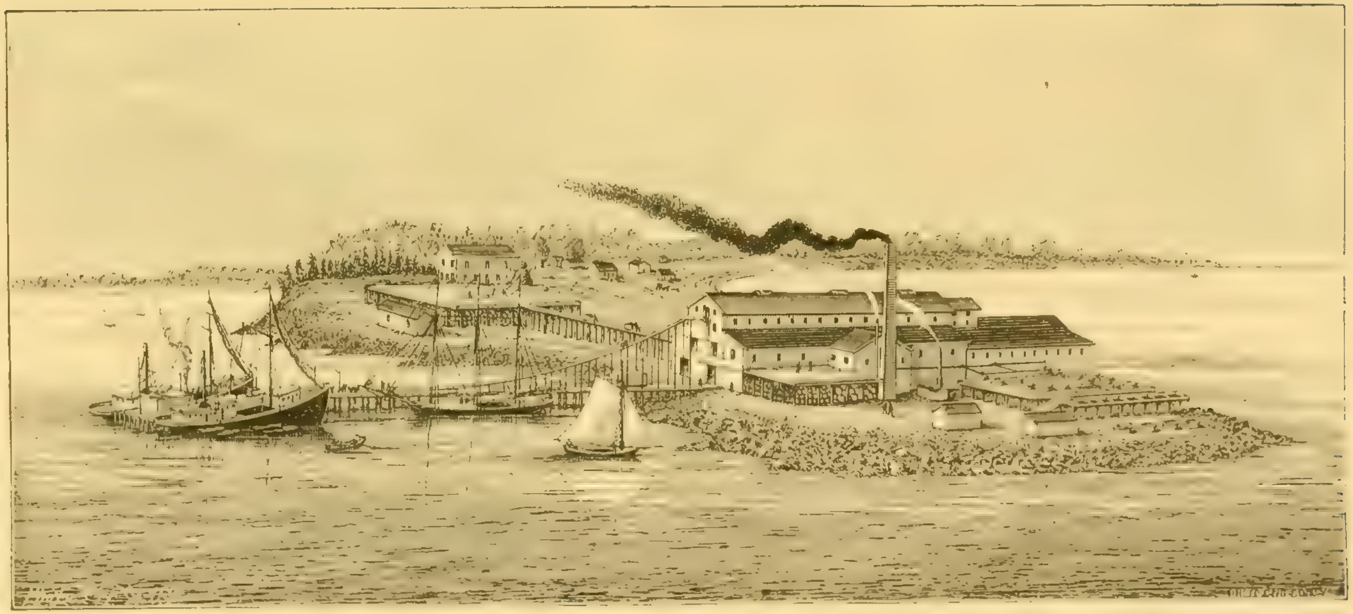
Floating factory; an old vessel fitted as an oil factory, moved from place to place near the fishing-grounds. (Sect. v, vol. i, pp. 345, 378.)

Drawing by H. L. Todd.



THE MENHADEN FISHERY.

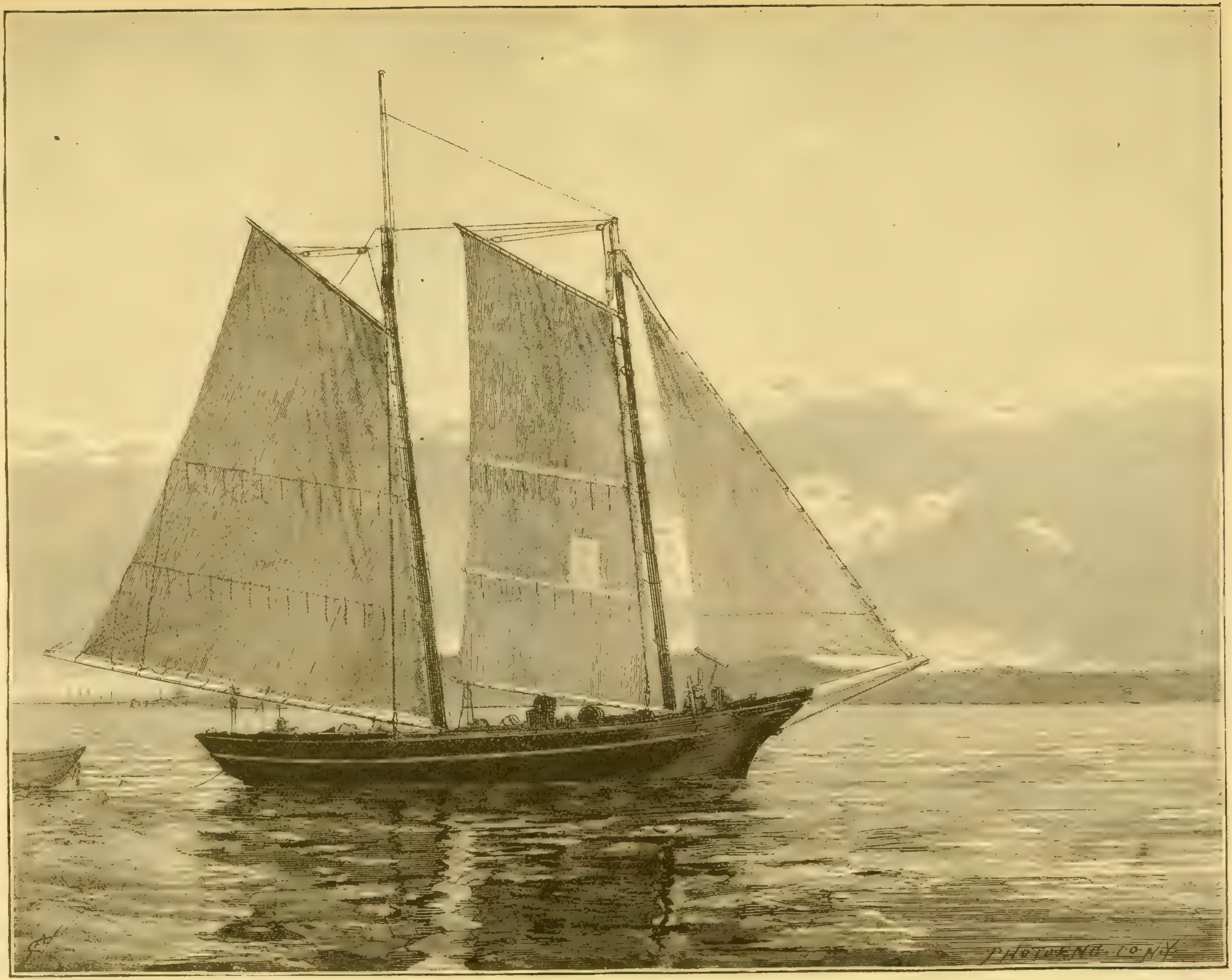
Slivering menhaden for bait. (Sect. v, vol. i, pp. 282, 348-356.)



THE MENHADEN FISHERY.

Menhaden oil and guano factory at Milford, Conn.: steamers unloading fish at the wharf; incline railway for carrying fish to cooking-tanks on upper floor of factory; oil-tanks and storage-sheds in foreground; platform for drying scrap in rear of factory connected with building by elevated railway. (Sect. v, vol. i, p. 342.)

From a photograph.


PHOTOENG. CO. N.Y.

THE HERRING FISHERY.

Herring schooner bound for Wood Island, Maine; outfit of salt and barrels on deck. (Sect. v, vol. i, p. 426.)

From a photograph by T. W. Smillie.

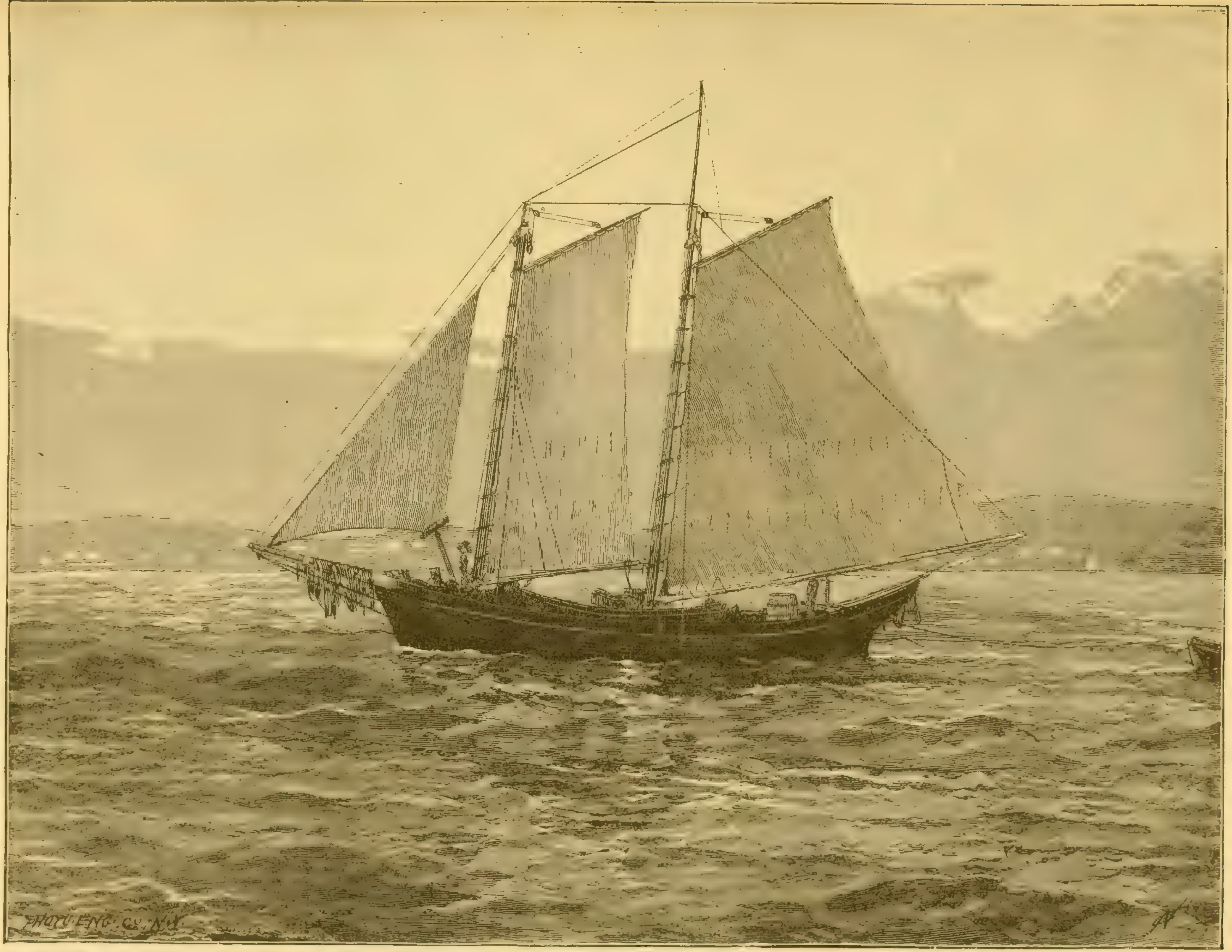
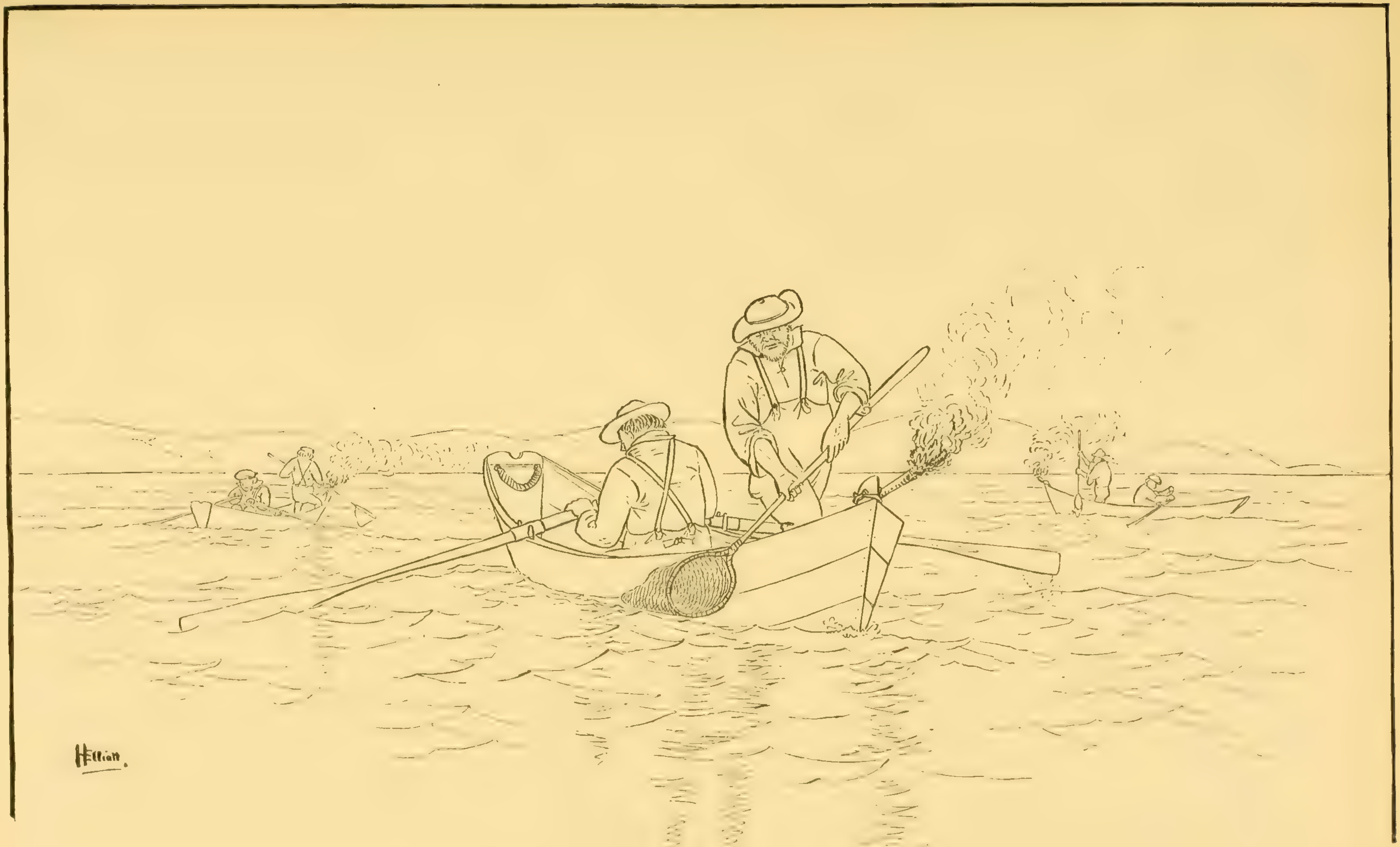


PHOTO-ENG. Co. N.Y.

THE HERRING FISHERY.

Herring pinkey bound for the fishing grounds; nets hanging over bowsprit and stern; net dories on deck. (Sect. v, vol. i, p. 426.)

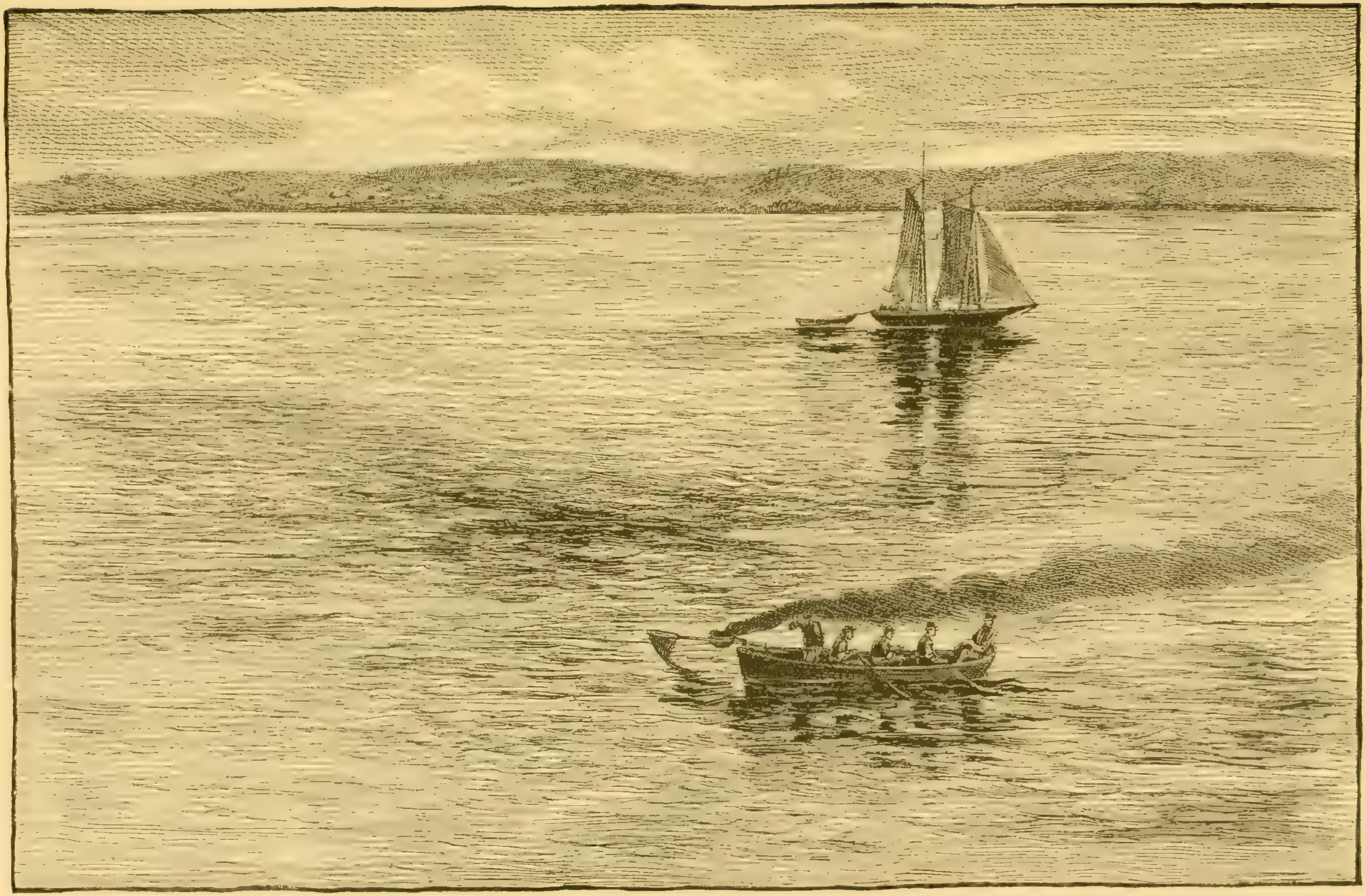
From a photograph by T. W. Smillie.



THE HERRING FISHERY.

Torching at night for spurling or small herring in Ipswich Bay, Massachusetts. (Sect. v, vol. i, p. 428.)

From sketch by J. S. Ryder.

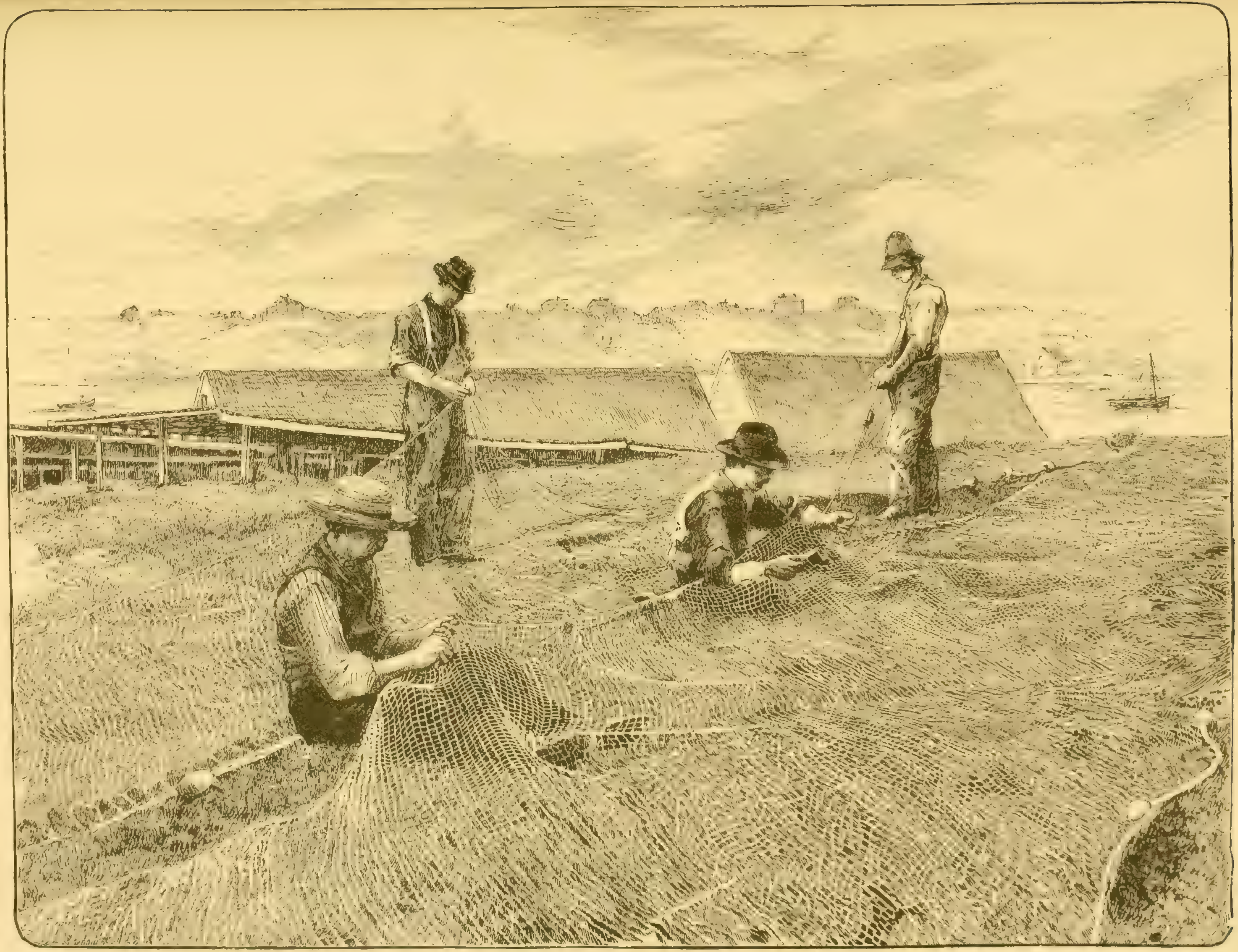


THE HERRING FISHERY.

Torching herring at night near Eastport, Maine; birch-bark fire burning in the "dragon" at bow of boat. (Sect. v, vol. i, p. 429).

From a photograph by T. W. Smillie

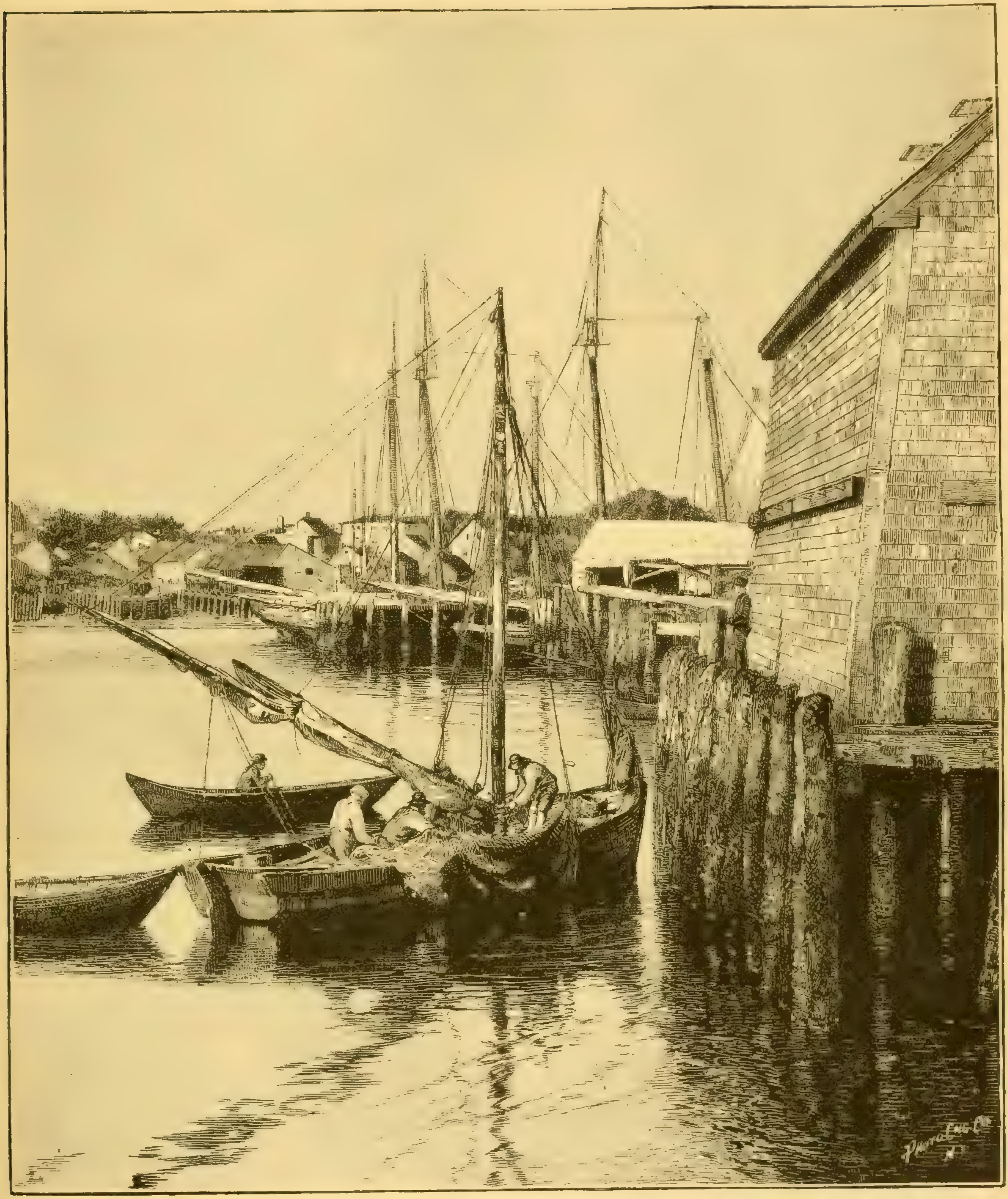
PLATE 120.



THE HERRING FISHERY.

Fishermen mending herring gill-nets at House Island, Casco Bay, Maine. (Sect. v, vol. i, p. 430.)

From a photograph by T. W. Smillie.



THE HERRING FISHERY.

Irish fishermen of Boston picking their herring nets in Gloucester Harbor. The typical "Irish Market Boat." (Sect. v. vol. i, p. 430.)

From a photograph by T. W. Smillie.

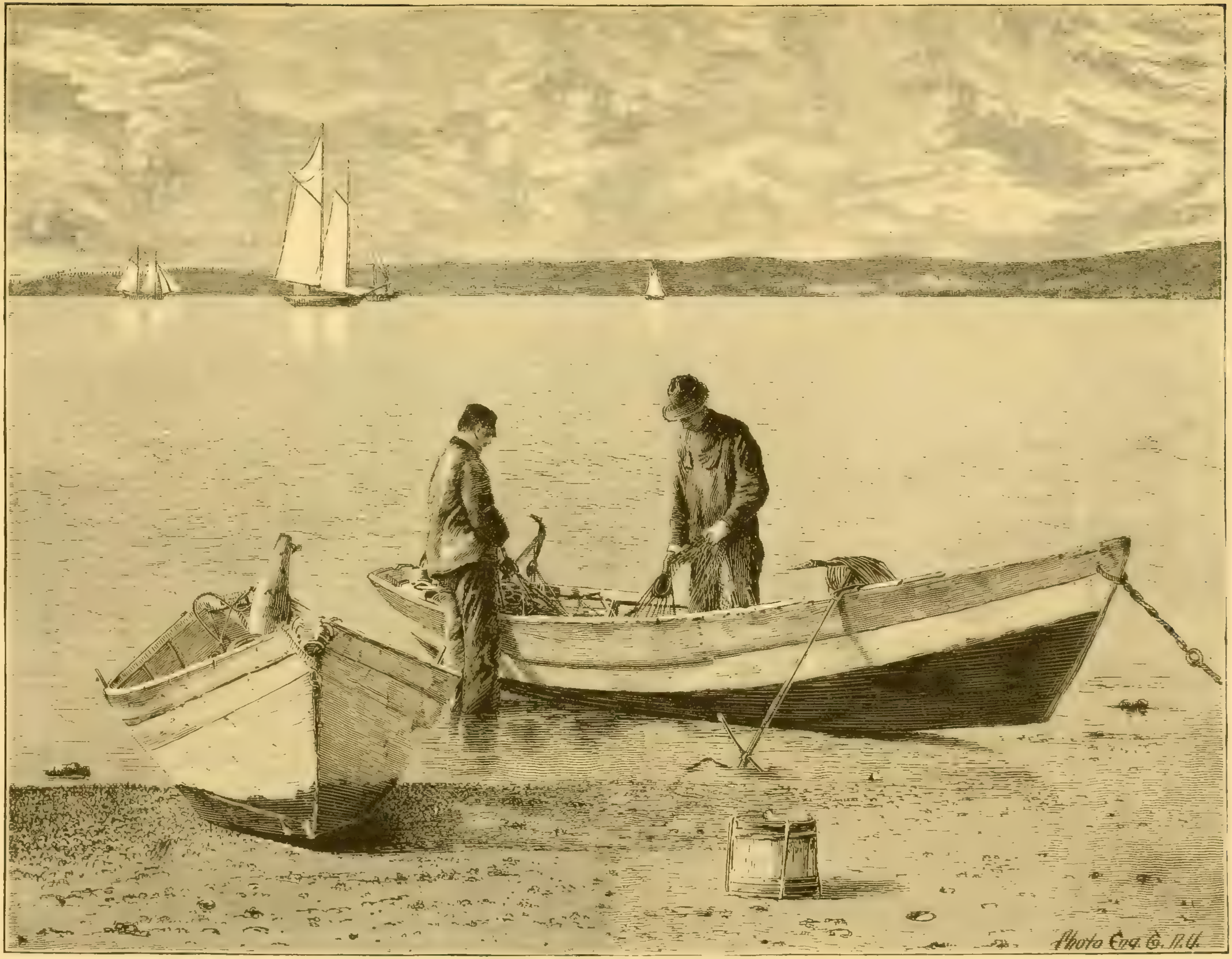


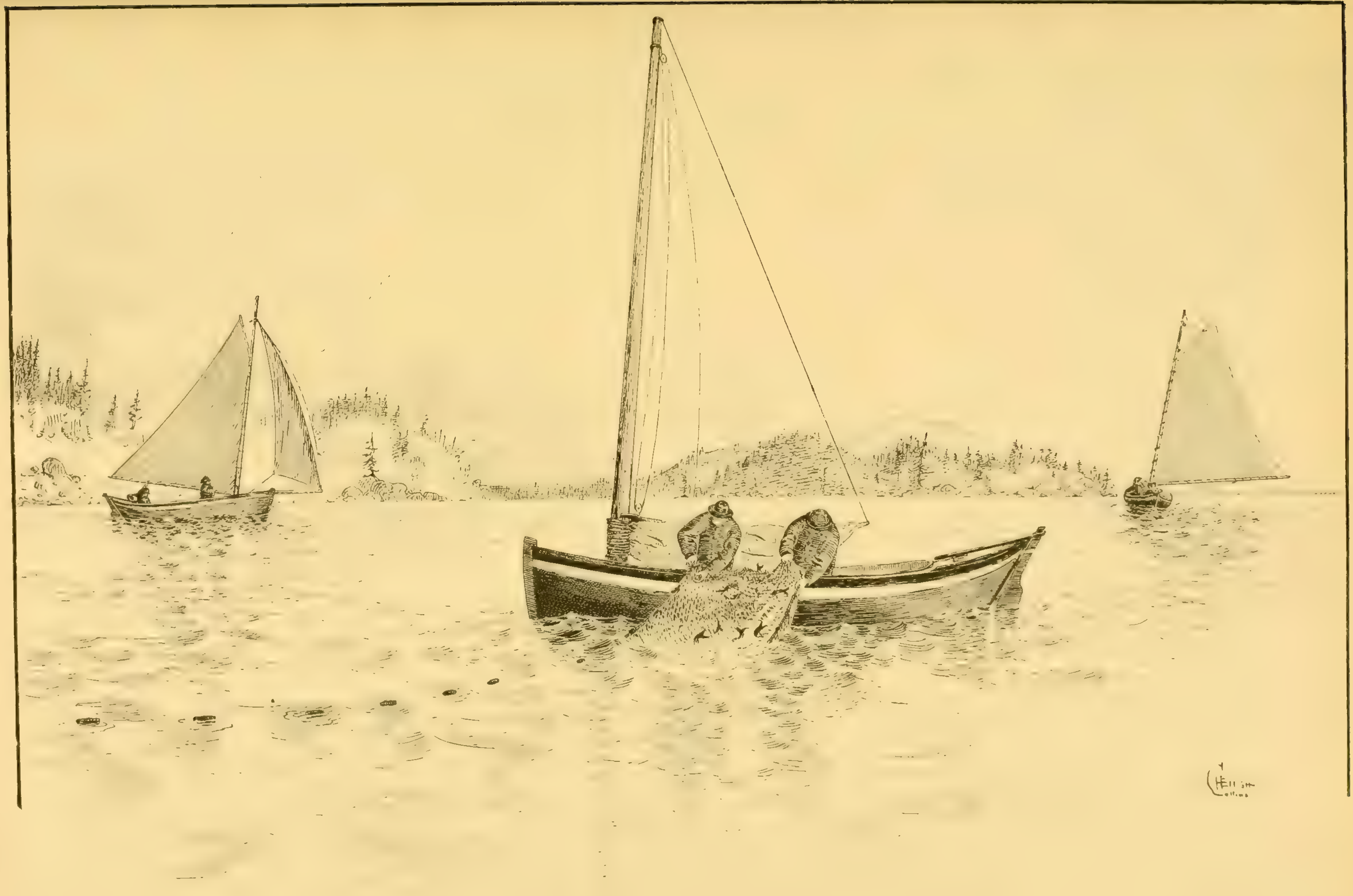
Photo Eng. Co. N.Y.

THE HERRING FISHERY.

Cape Ann herring fishermen landing their gill-nets after a night's fishing. (Sect. v, vol. i, p. 430.)

From a photograph by T. W. Smillie.

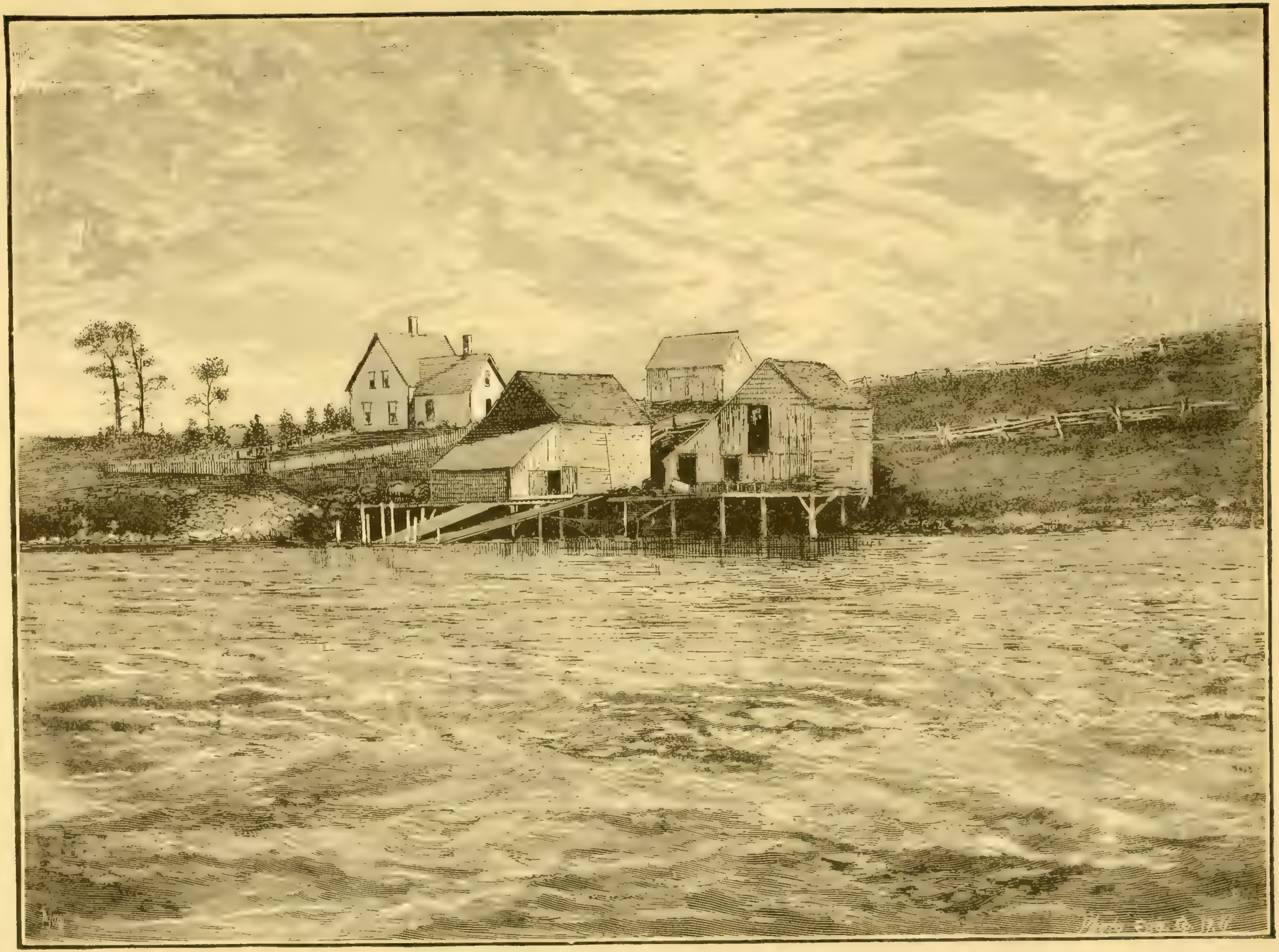
PLATE 123.



THE HERRING FISHERY.

Fishermen in Quoddy boat hauling herring gill nets. (Sect. v, vol. i, p. 430.)

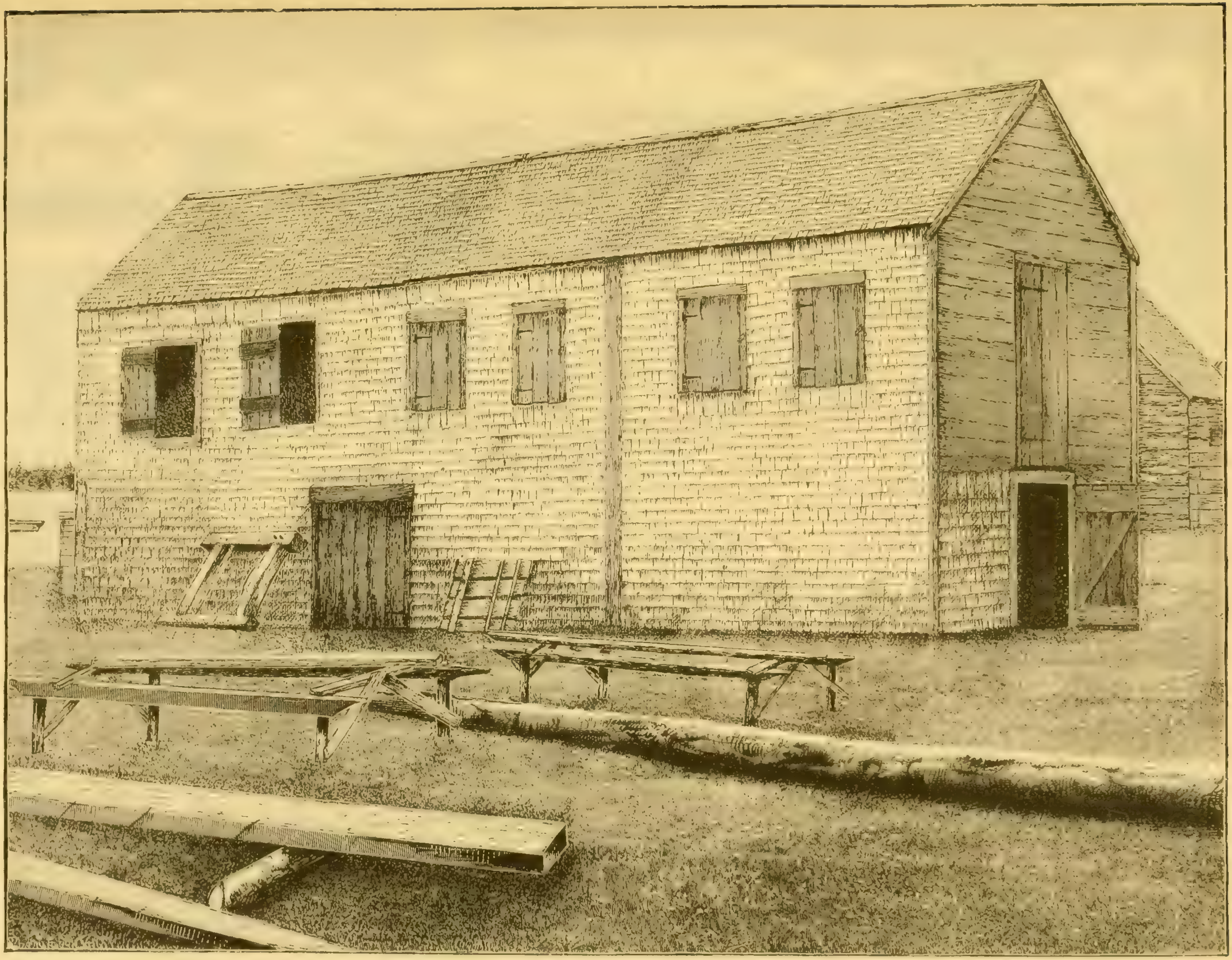
Drawing by H. W. Elliott and Capt. J. W. Collins



THE SMOKED-HERRING INDUSTRY.

Boat landing, fish houses, herring smoke-house, fisherman's dwelling and farm. (Sect. v, vol. i, p. 476.)

From a photograph by T. W. Smillie.



THE SMOKED-HERRING INDUSTRY.

Old style herring smoke-house (without ventilation on roof), at Leubec, Me. (Sect. v, vol. i, p. 476.)

From a photograph by T. W. Smillie

PLATE 126.

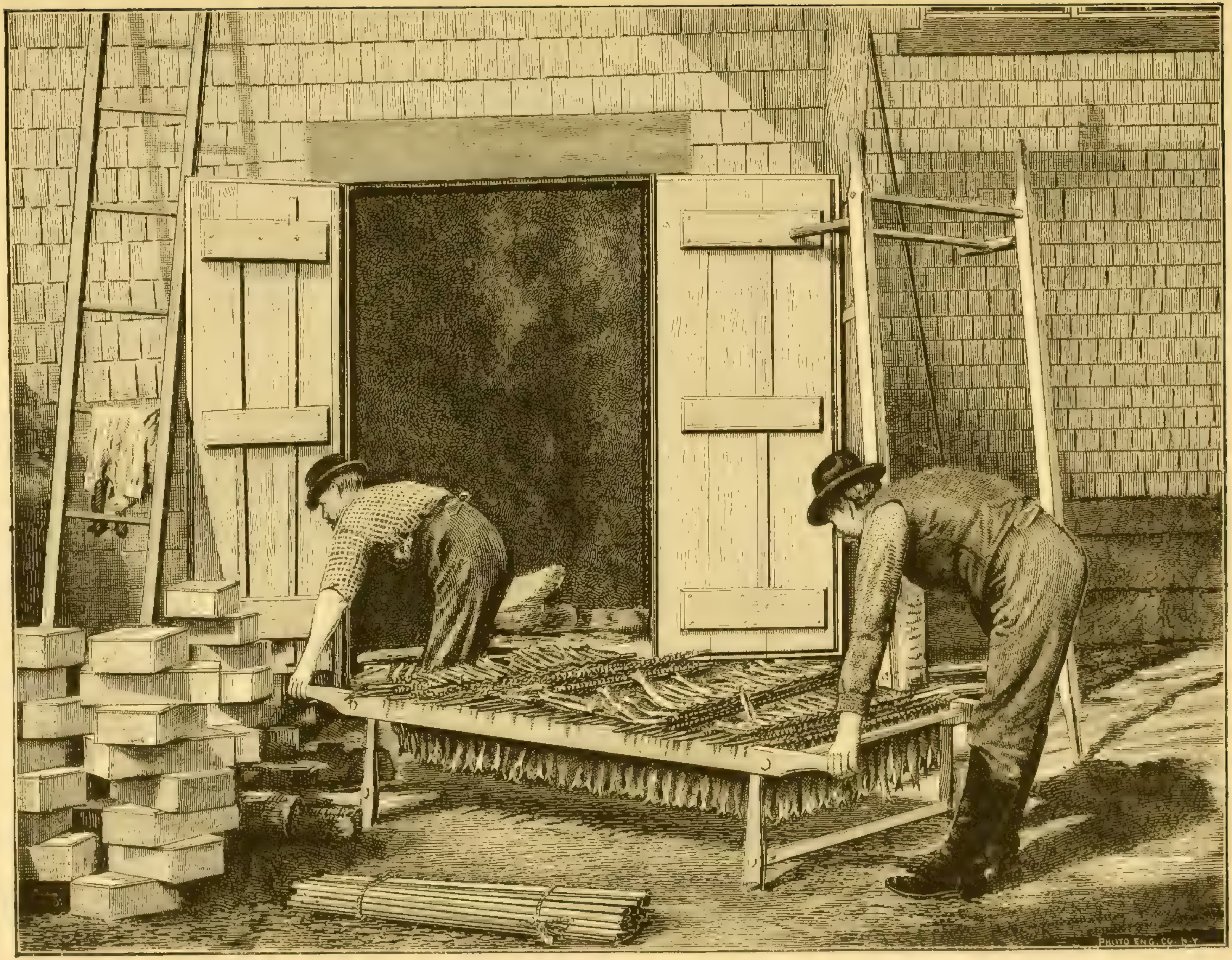
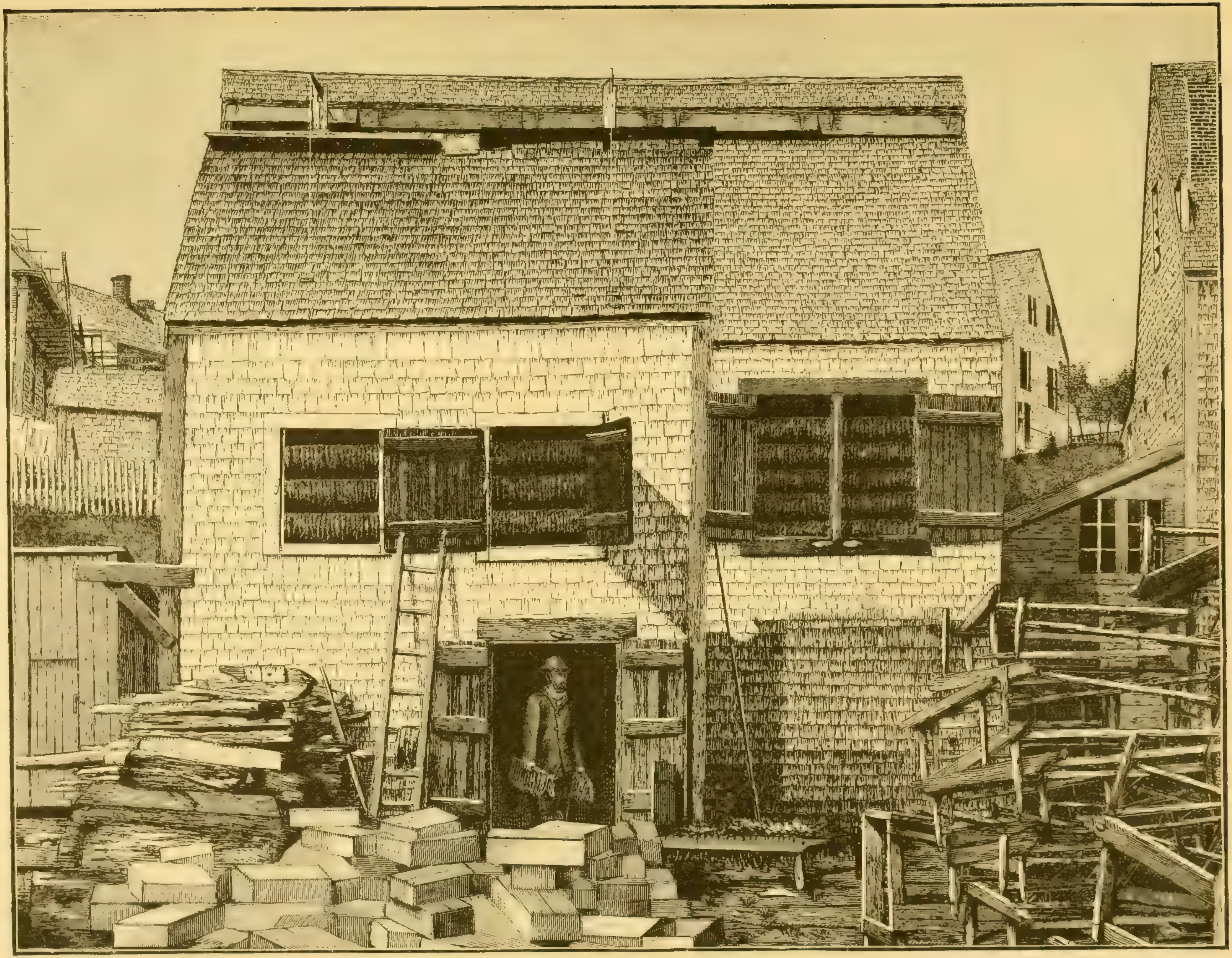


PHOTO ENG. CO. N.Y.

THE SMOKED-HERRING INDUSTRY.

Herring-horse loaded with smoked fish strung on sticks. (Sect. v, vol. i, p. 478.)

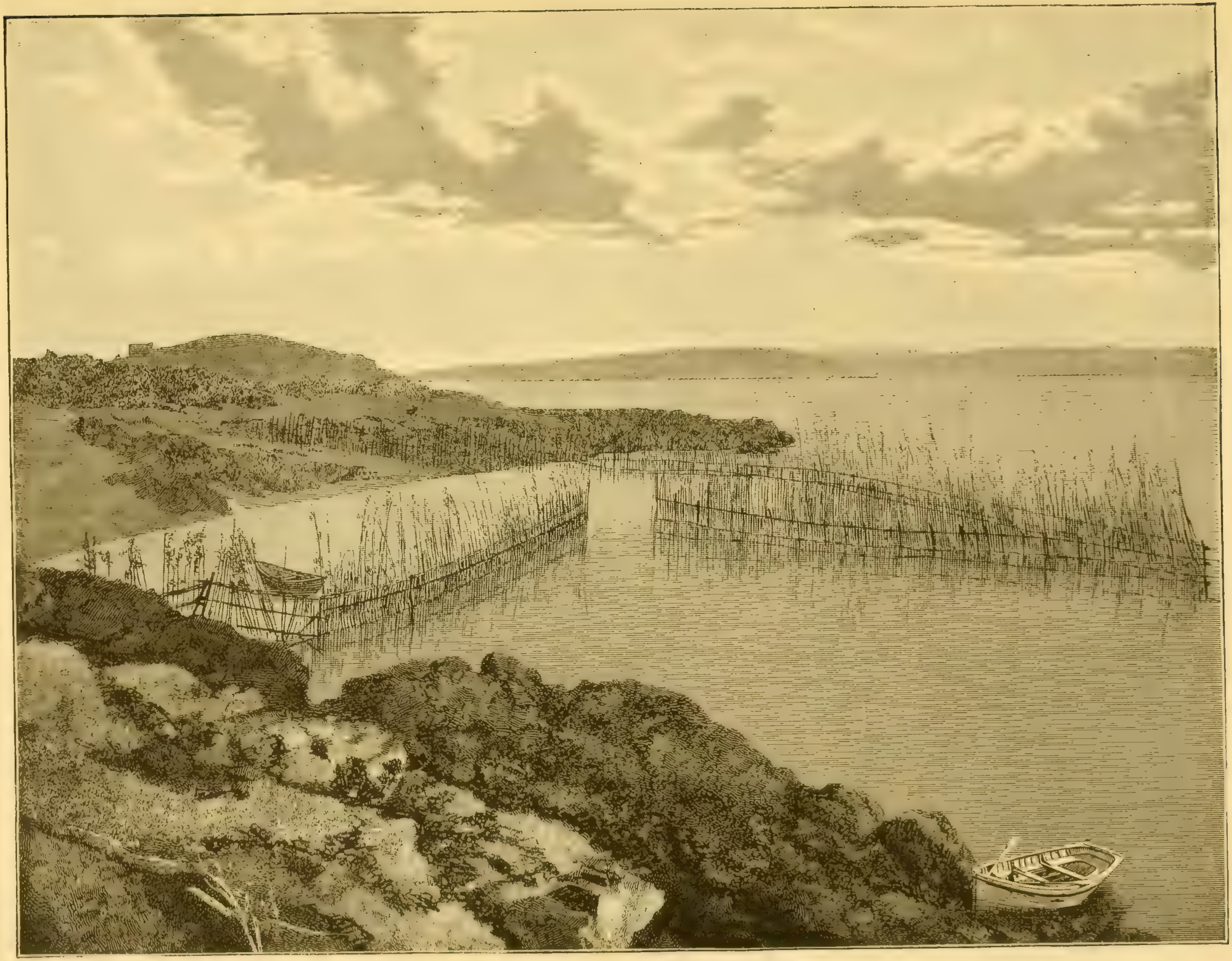
From a photograph by T. W. Smillie.



THE SMOKED-HERRING INDUSTRY.

Herring smoke-house at Eastport, Me.; smoke ventilators in roof; sticks of herring inside. (Sect. v, vol. i, p. 480.)

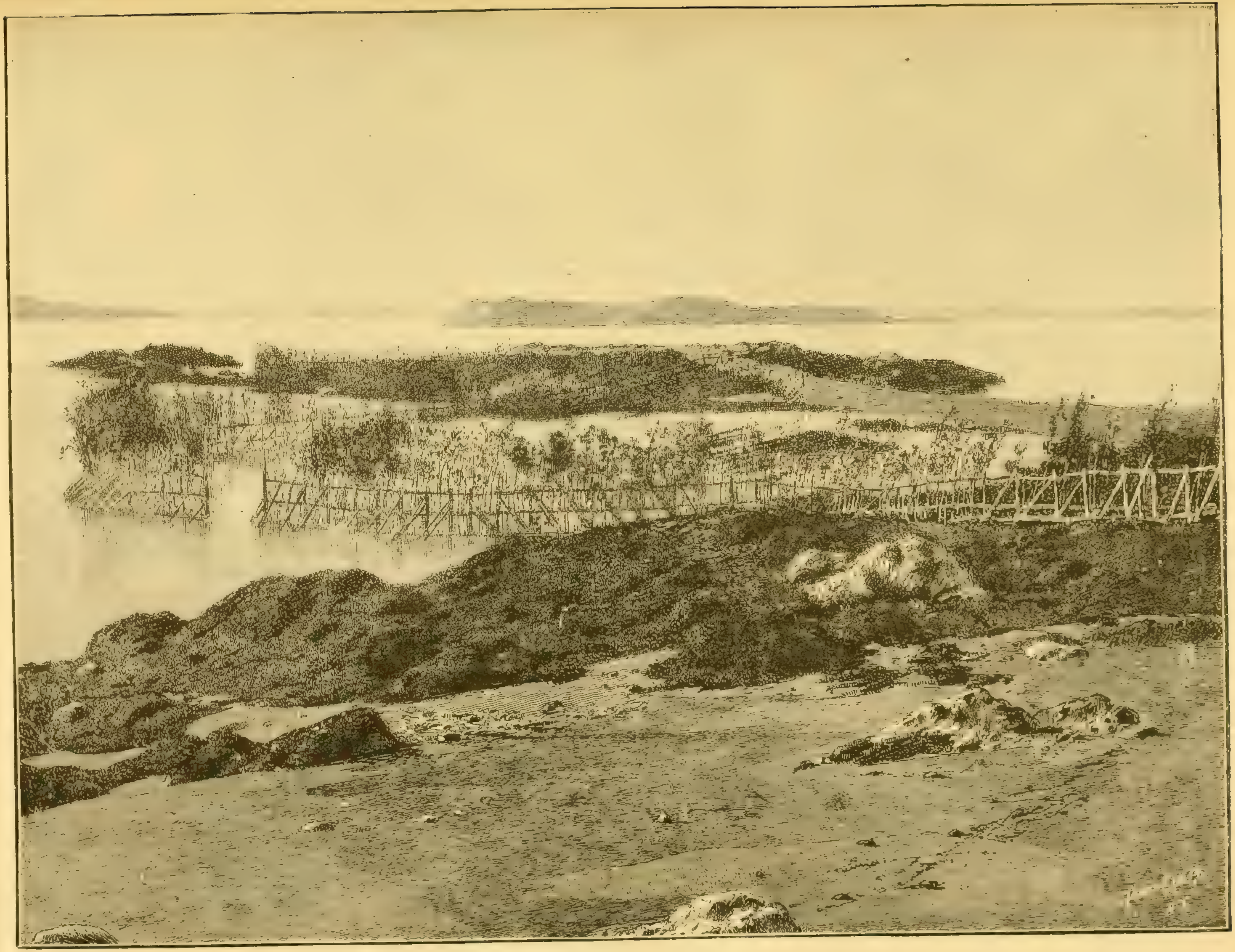
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Shore herring weir near Eastport, Me.; the common form of brush weir. (Sect. v, vol. i, p. 501.)

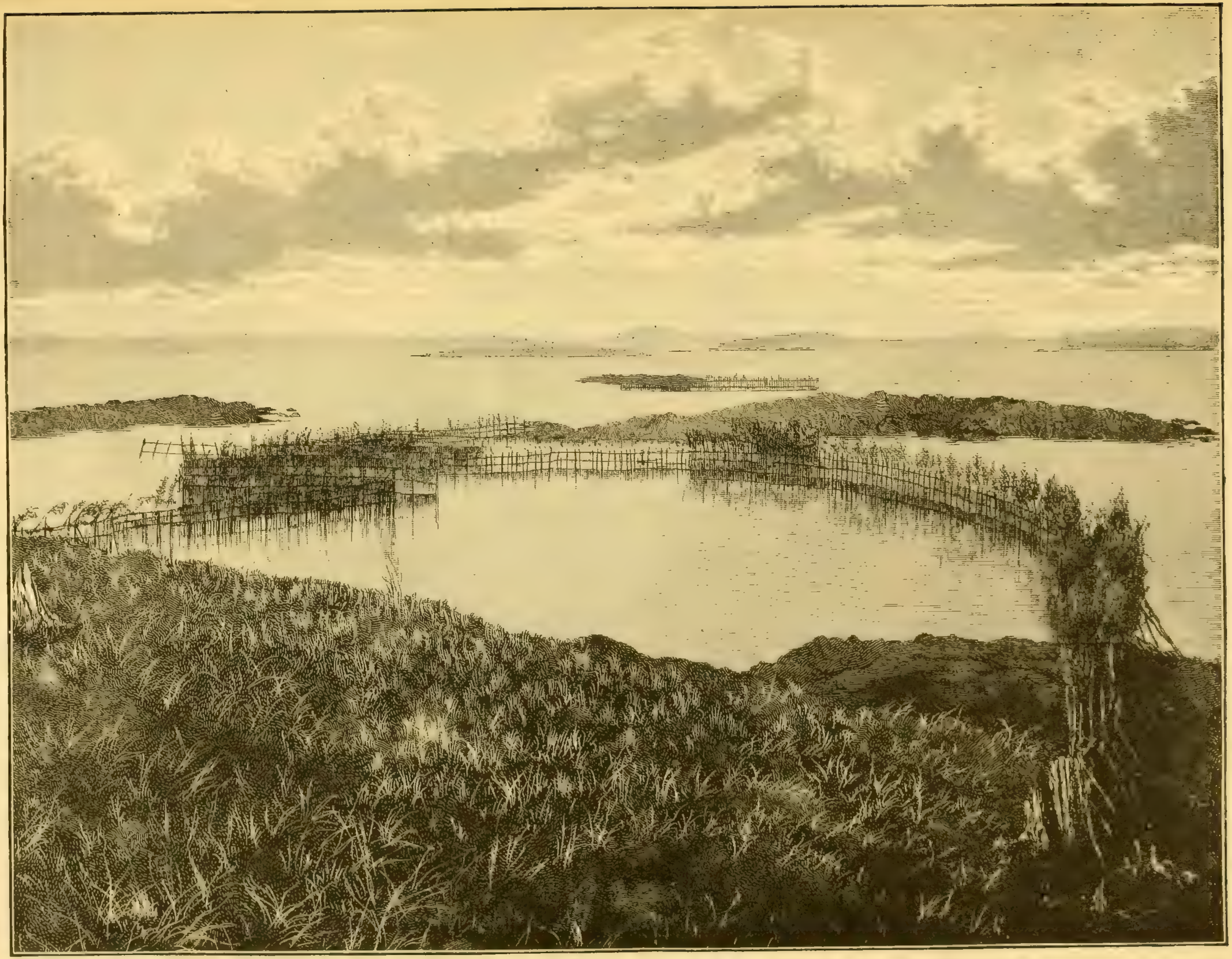
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Bar herring-weir near Eastport, Me.; escape of fish prevented by receding tide. (Sect. v. vol. 1, p. 500.)

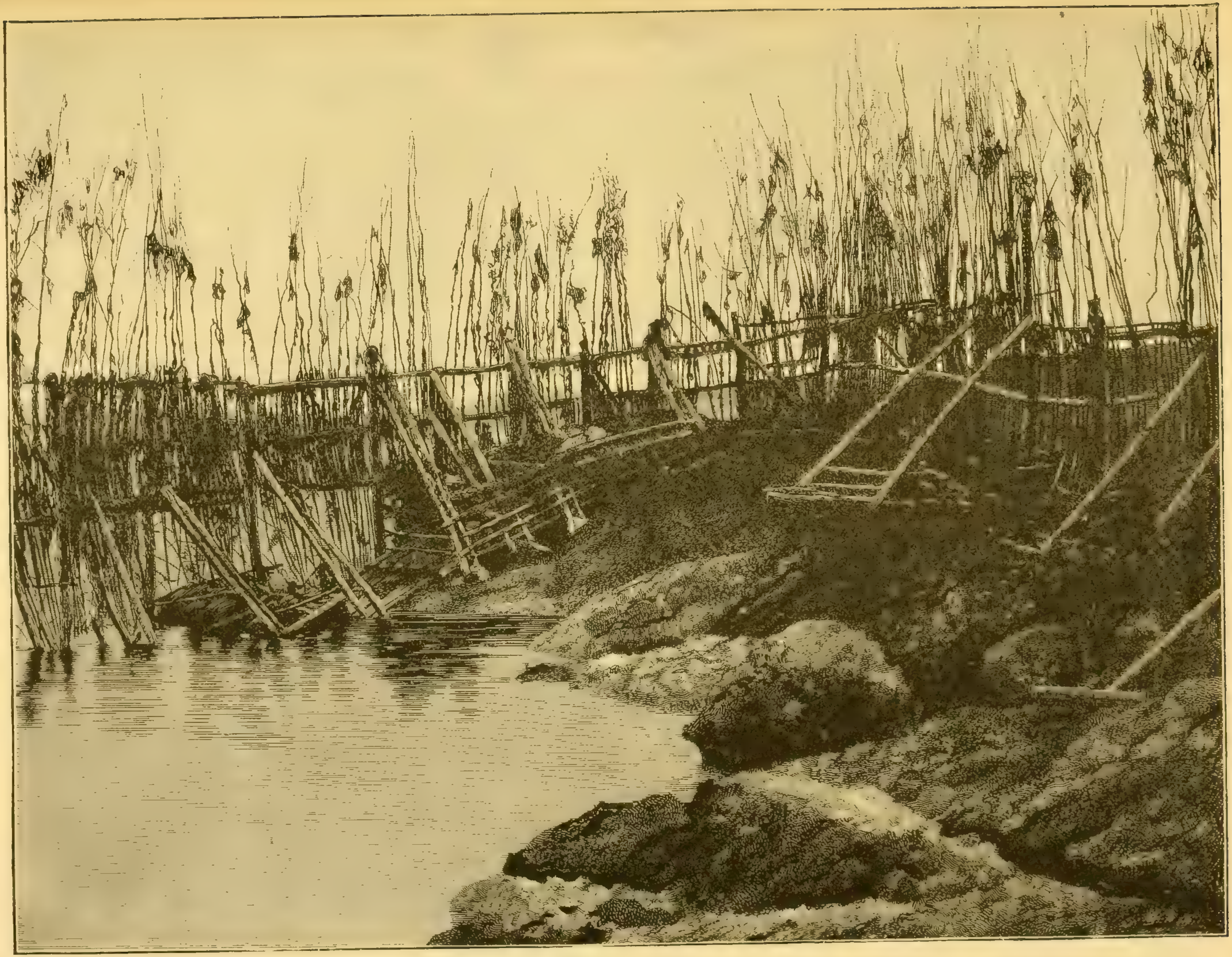
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Channel herring-weir near Eastport, Me.; controls channel between islands. (Sect. v, vol. i, p. 501.)

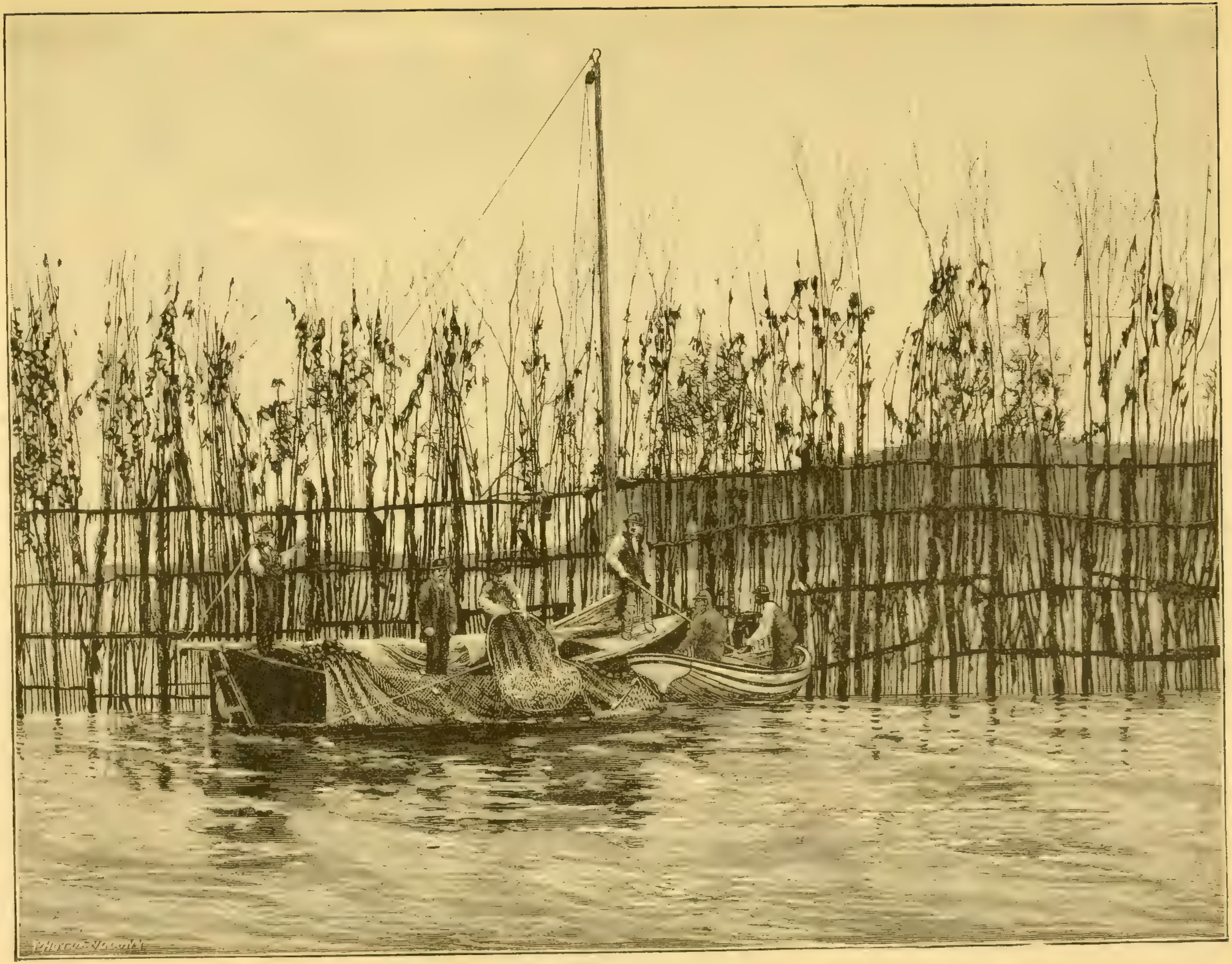
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Section of ballasted herring-weir near Eastport, Me.; for rocky bottom. (Sect. v, vol. i, p. 502.)

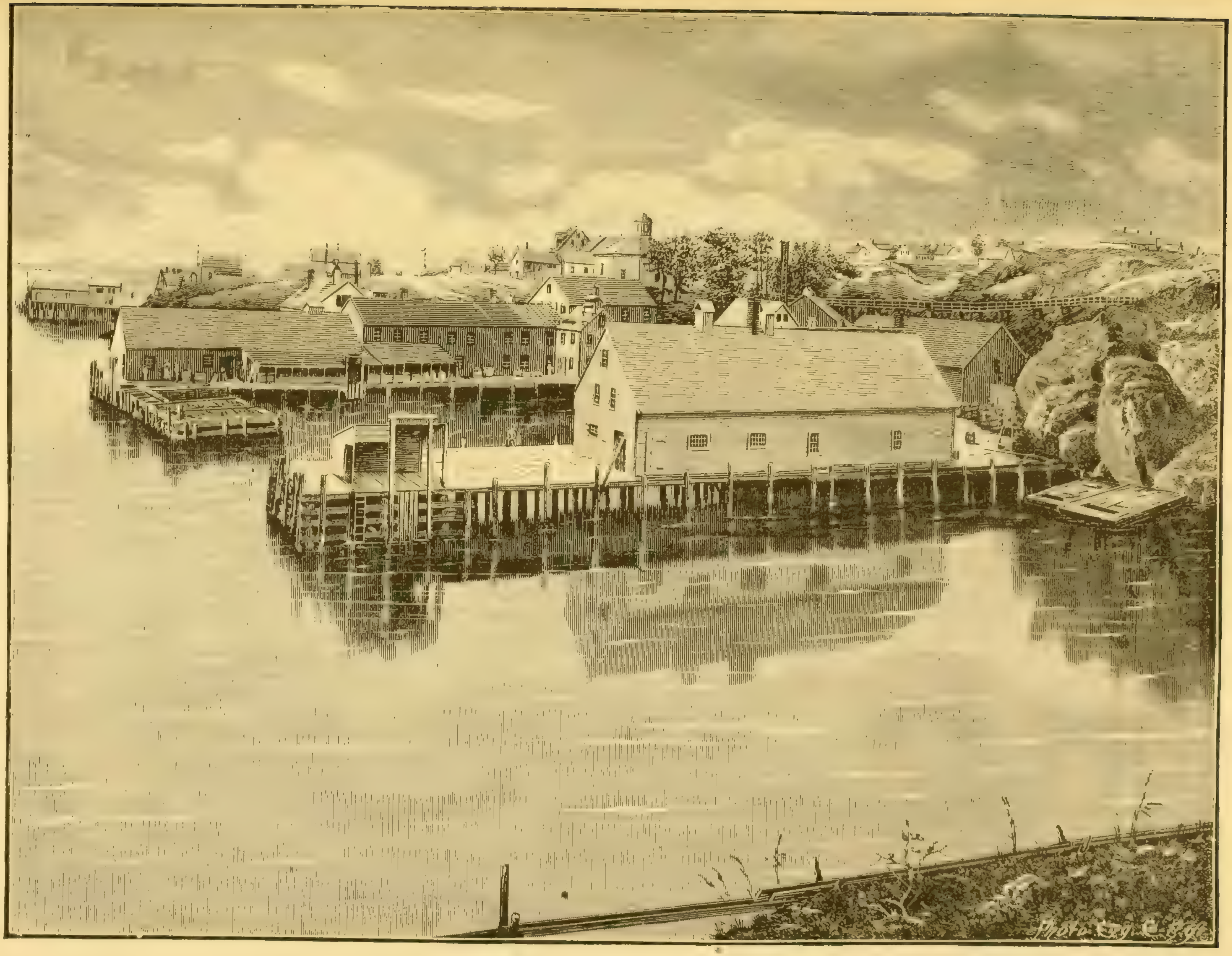
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Fishing a herring-weir at low tide, near Eastport, Me. (Sect. v, vol. i, p. 503.)

From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

General view of a sardine cannery at Eastport, Me. (Sect. v, vol. i, p. 508.)

From a photograph by T. W. Smillie.

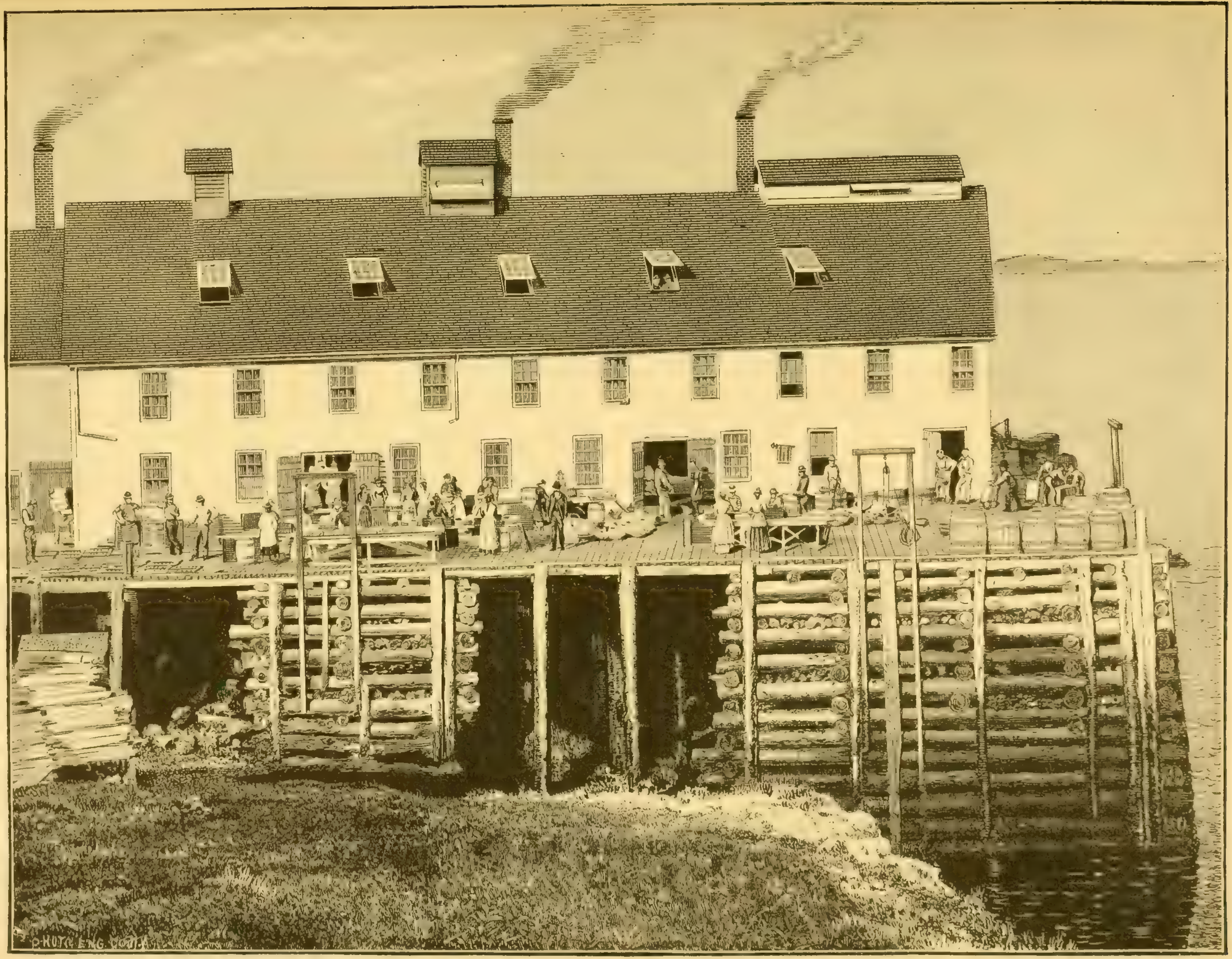


PHOTO. ENG. CO. N.Y.

THE SARDINE INDUSTRY.

View of a sardine cannery at low tide, showing the employés at work. (Sect. v, vol. i, p. 508.)

From a photograph by T. W. Smillie.

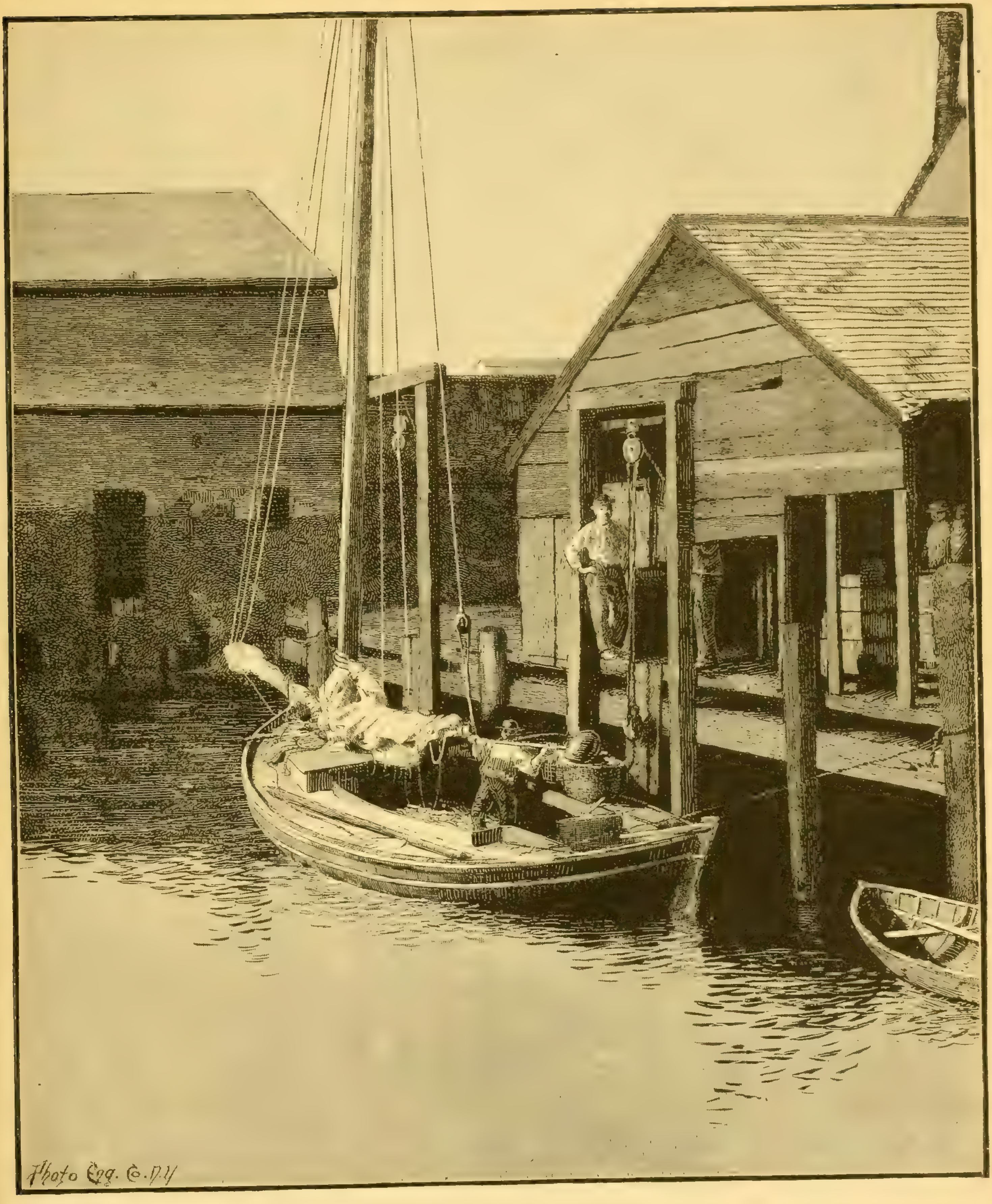


Photo Eng. Co. N.Y.

THE SARDINE INDUSTRY.

Unloading herring at a sardine cannery, Eastport, Me. (Sect. v, vol. i, p. 509.)

From a photograph by T. W. Smillie

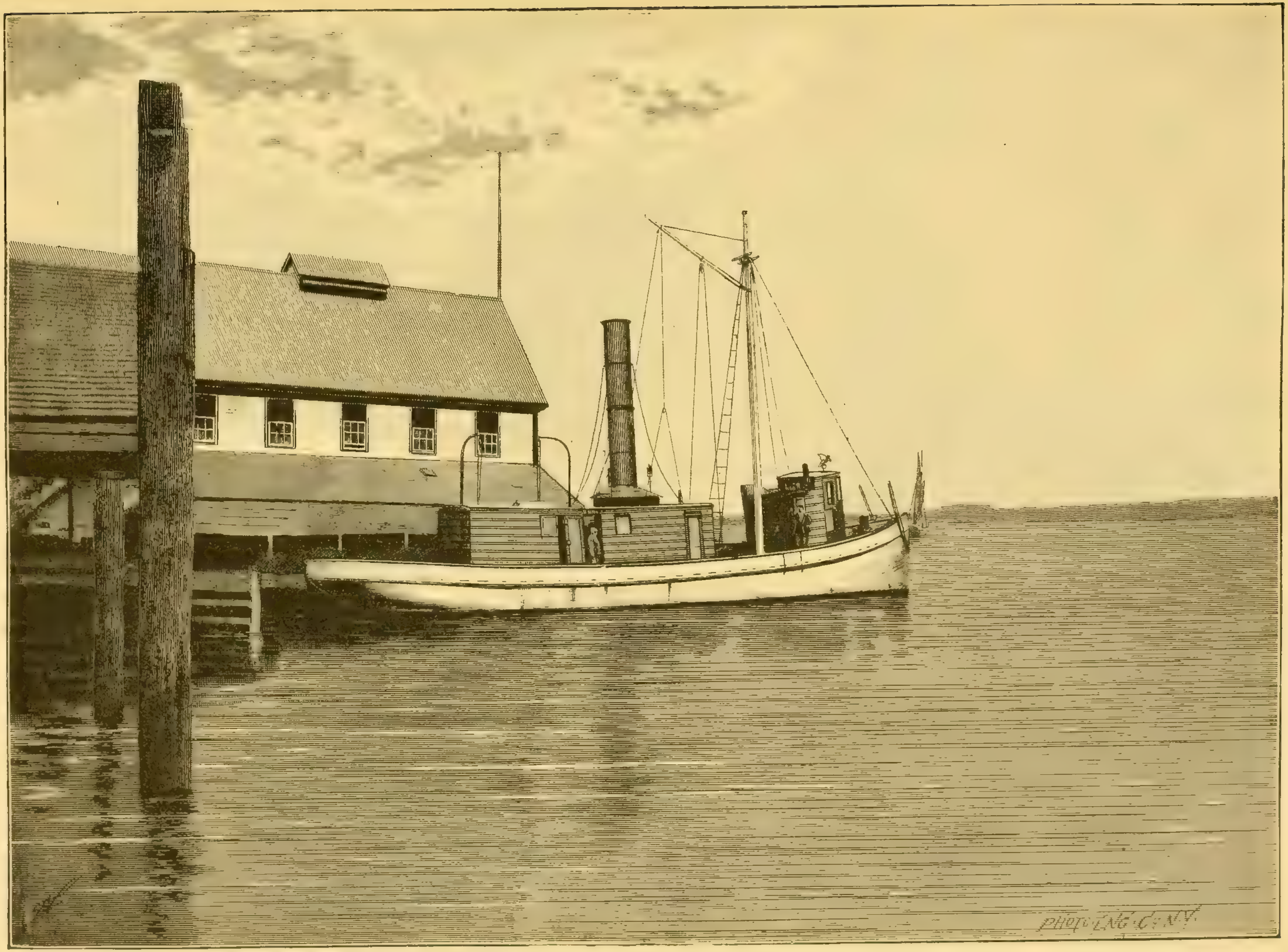
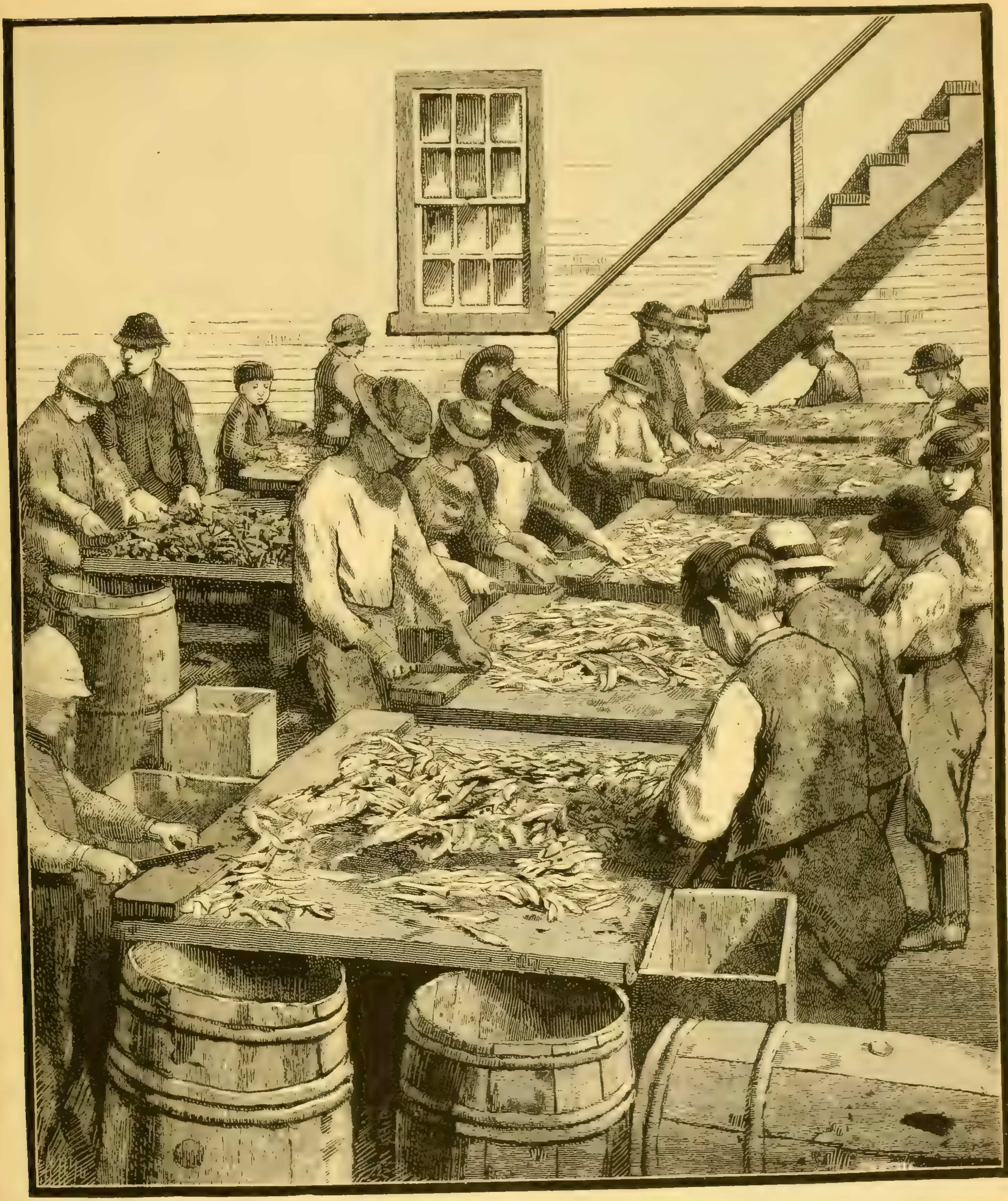


PHOTO.ENG.CO.N.Y.

THE SARDINE INDUSTRY.

Sardine steamer for collecting herring and towing weir-boats. (Sect. v, vol. i, p. 510.)

From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Children at sardine cannery cutting off the heads and tails, and cleaning small herring for canning. (Sect. v, vol. i, p. 510.)

From a photograph by T. W. Smillie.

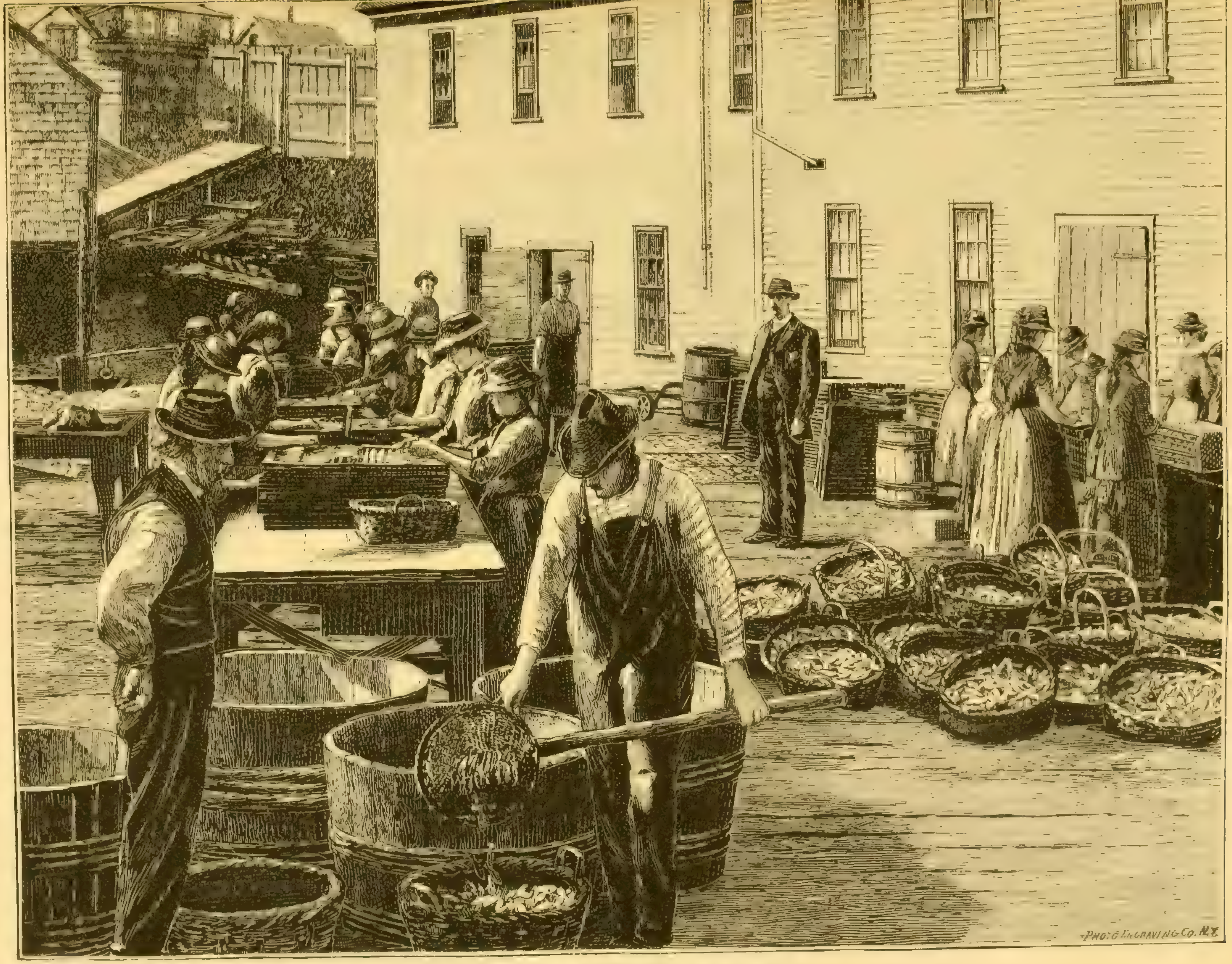


PHOTO ENGRAVING CO. N.Y.

THE SARDINE INDUSTRY.

Washing, draining, and flaking herring at sardine cannery, Eastport, Me. (Sect. v. vol. i, p. 512.)

From a photograph by T. W. Smillie.

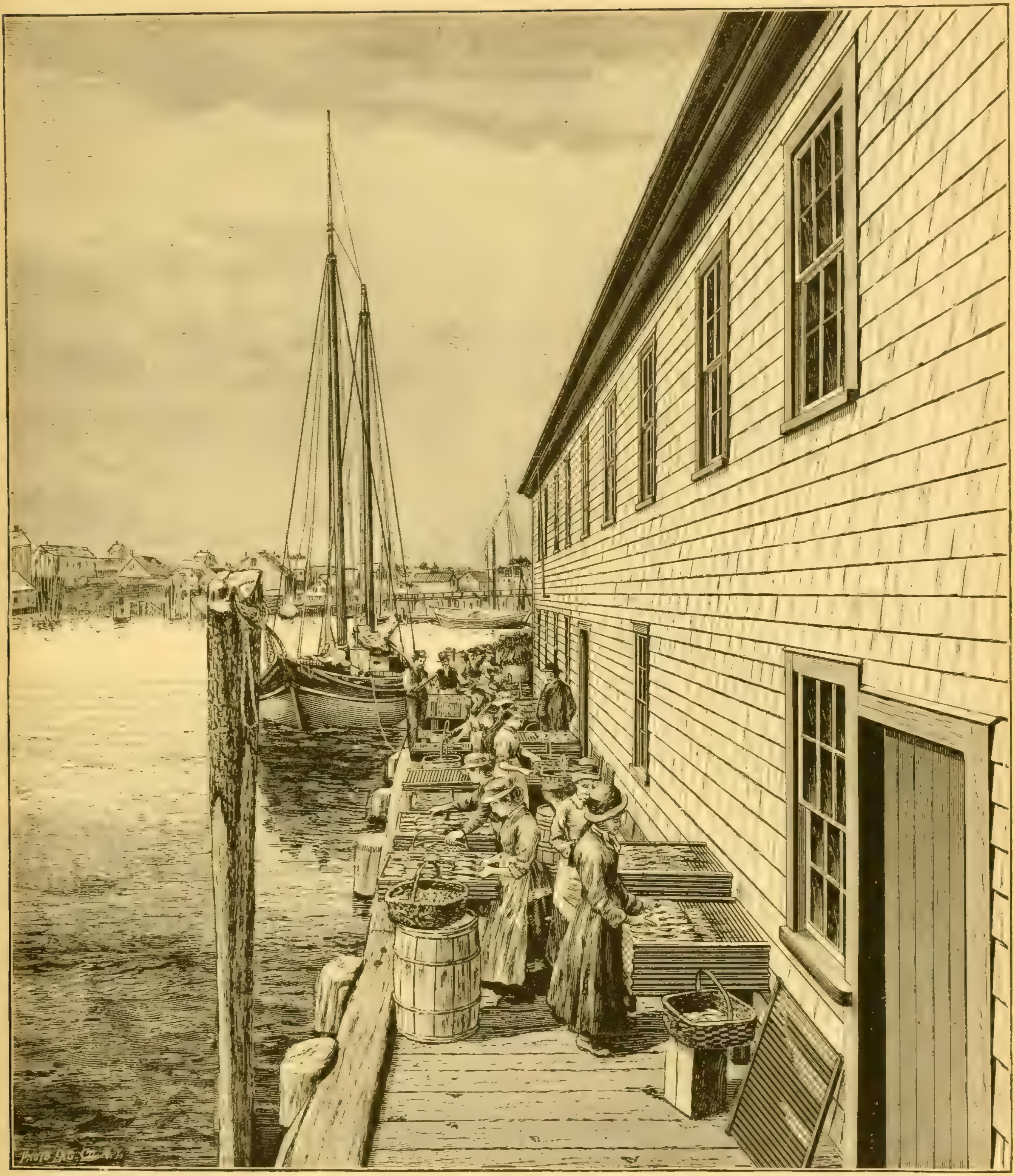
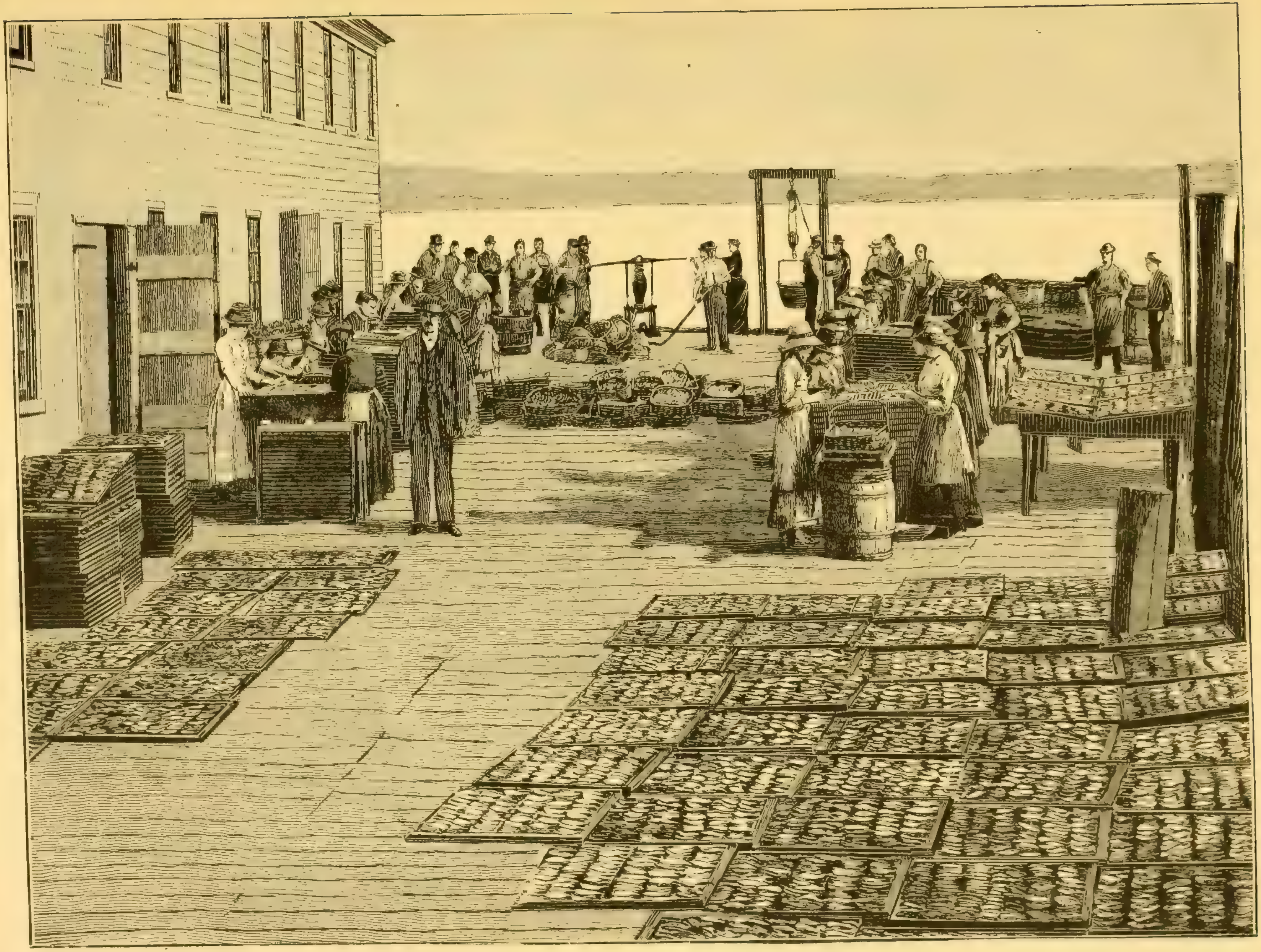


Photo Eng. Co. N.Y.

THE SARDINE INDUSTRY.

Spreading herring on flakes for drying in the sun or in an oven. (Sect. v, vol. i, p. 511.)

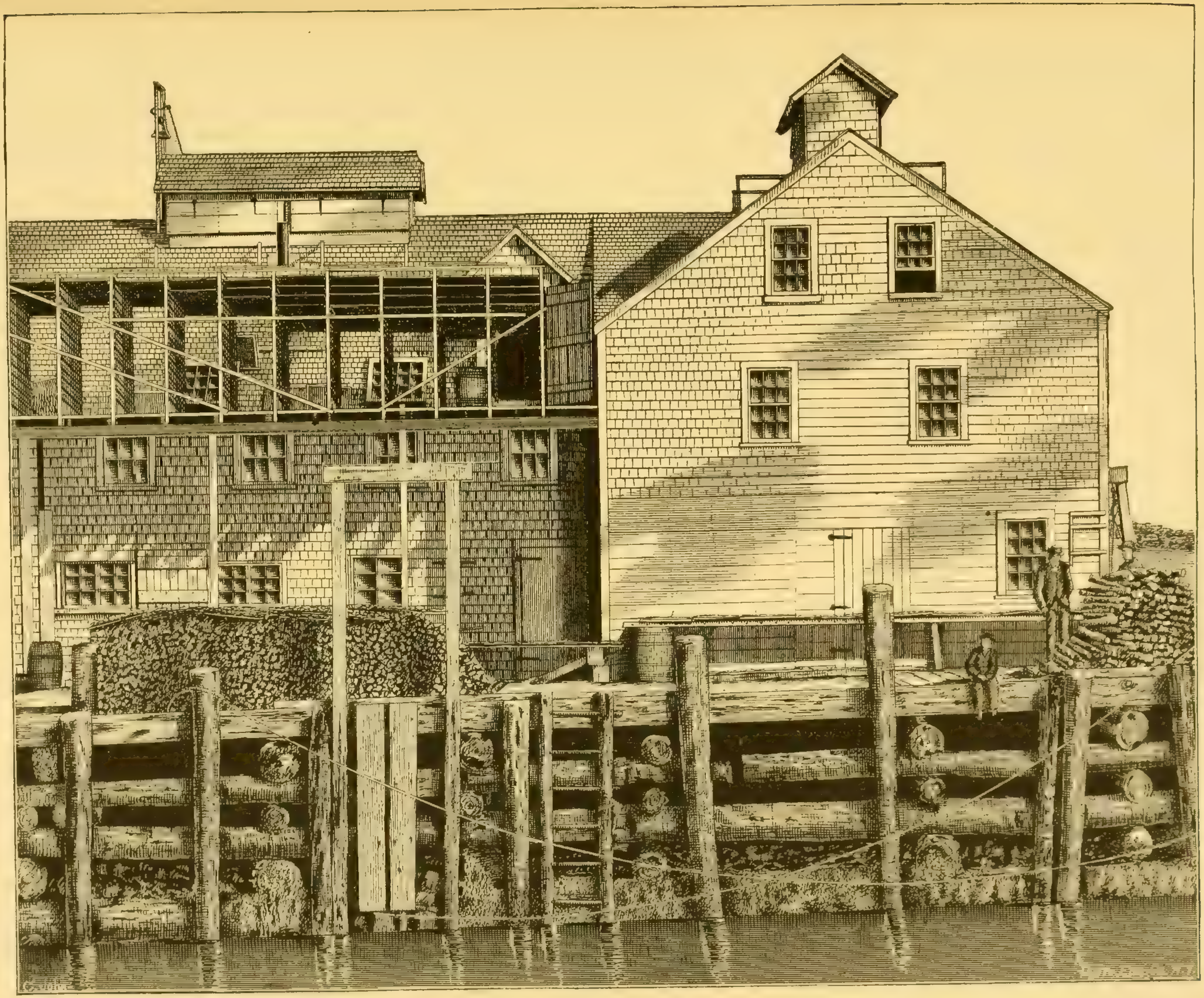
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Herring drying on the flakes in the sun ; landing, cleaning, washing, &c., at sardine cannery, Eastport, Me. (Sect. v, vol. i, p. 513.)

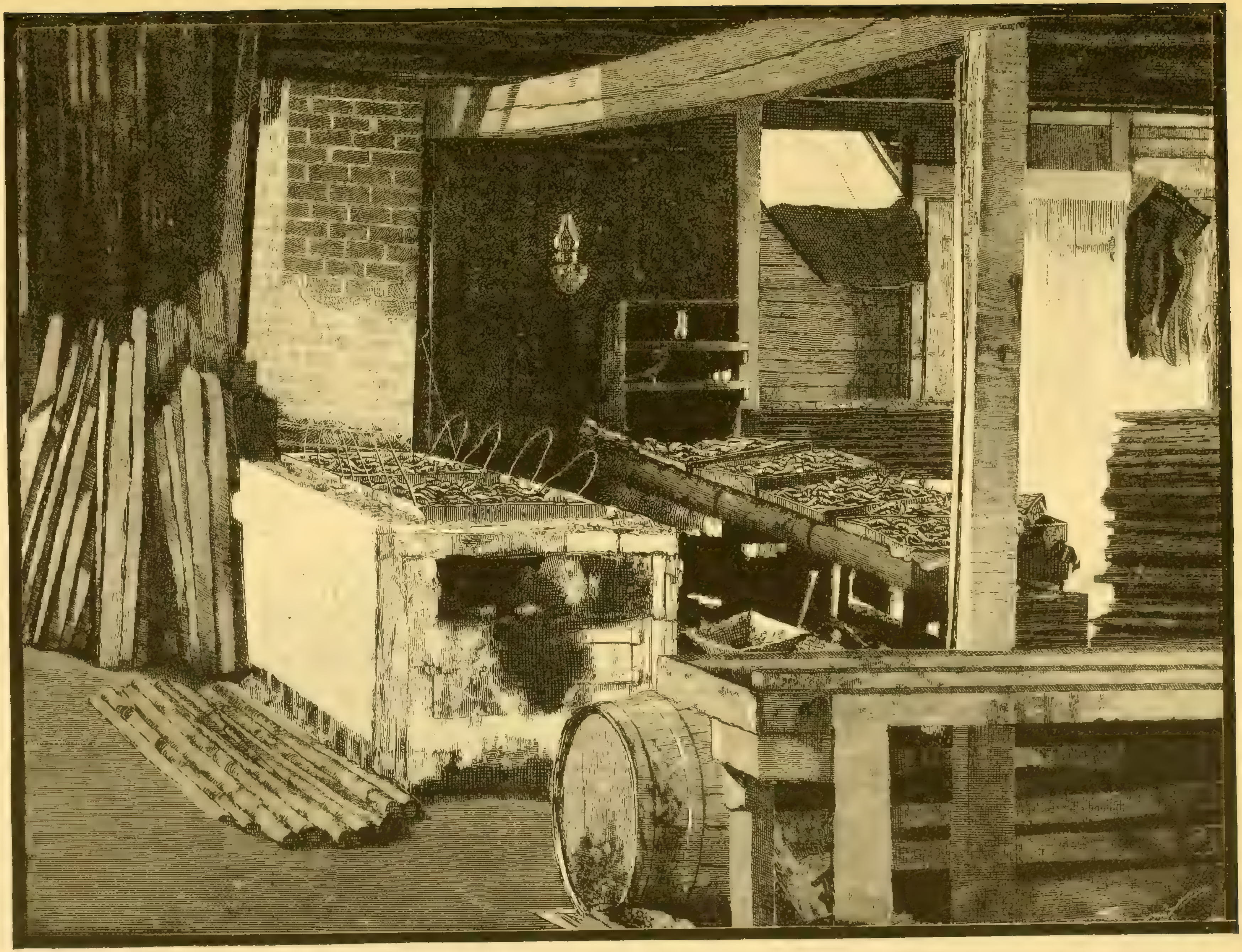
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Fish-drying frames on roof of sardine cannery, at Eastport, Me. (Sect. v, vol. i, p. 512.)

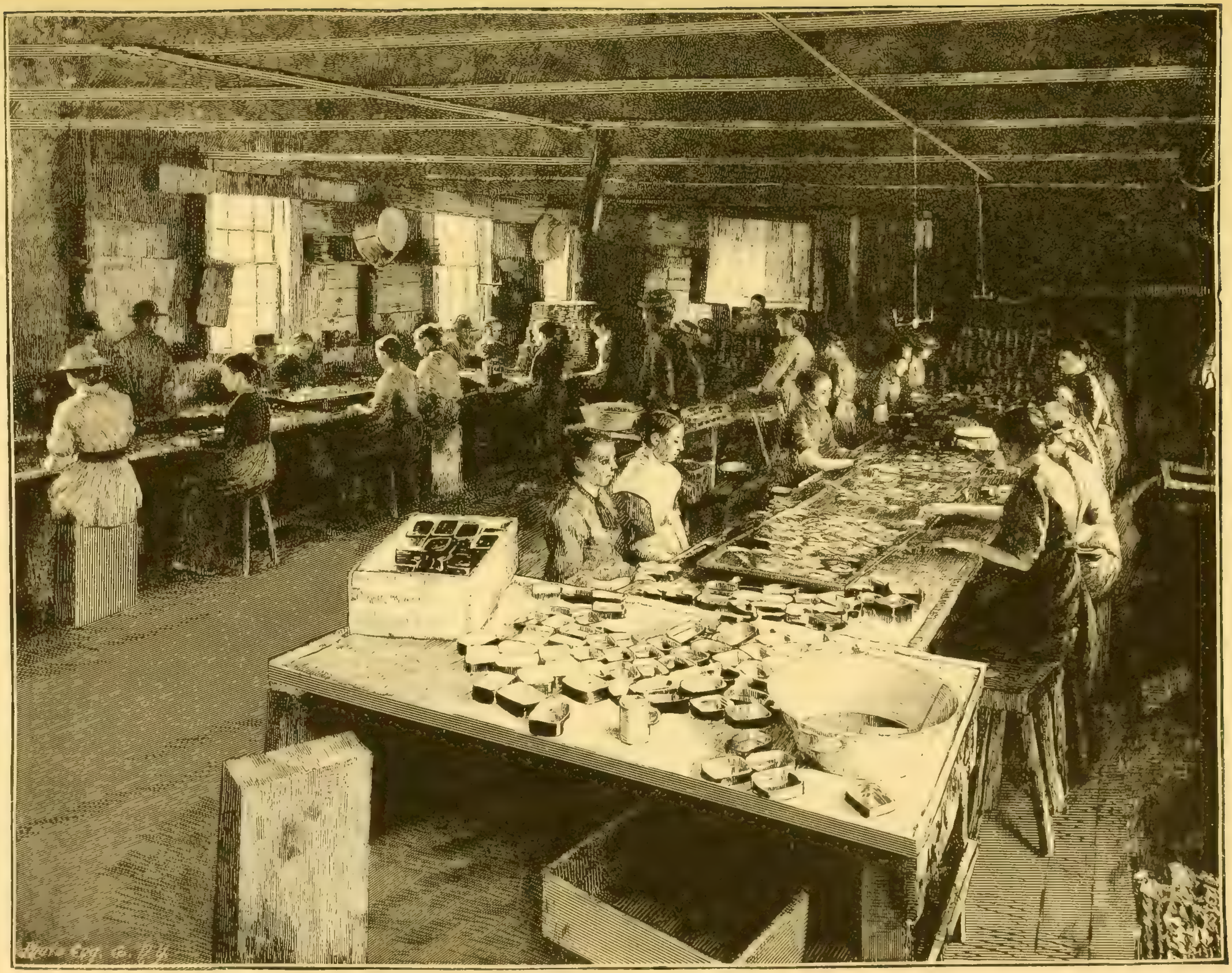
From a photograph by T. W. Smillie



THE SARDINE INDUSTRY.

Frying-room in sardine cannery at Eastport, Me.: herring frying in pans of oil. (Sect. v, vol. i, p. 514.)

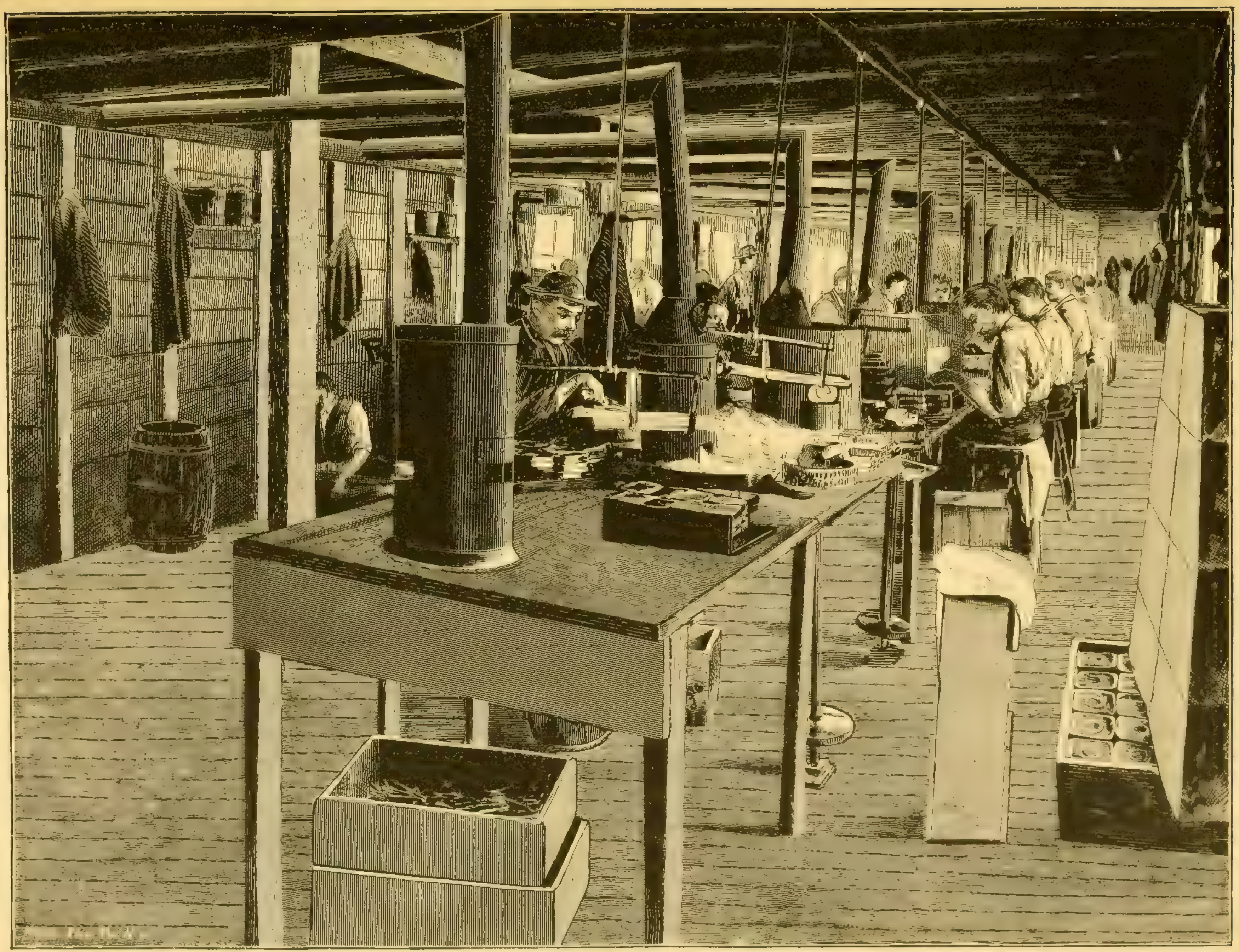
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Packing-room in sardine cannery, at Eastport, Me.; packing herring-sardines in tin boxes. (Sect. v, vol. i, p. 515.)

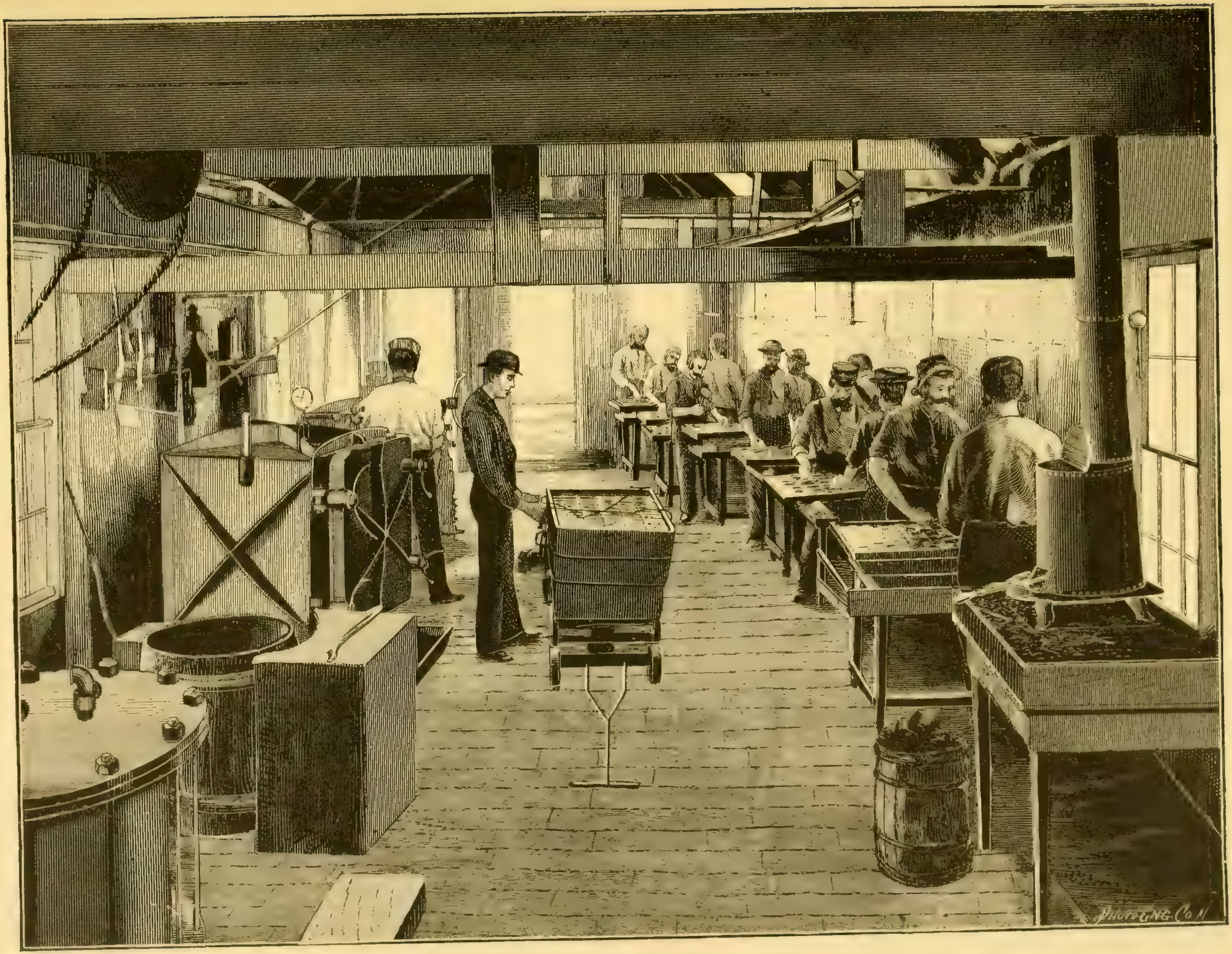
From a photograph by T. W. Smillie



THE SARDINE INDUSTRY.

Soldering-room at sardine cannery, Eastport, Me.: solderers sealing the cans. (Sect. v, vol. i, p. 516.)

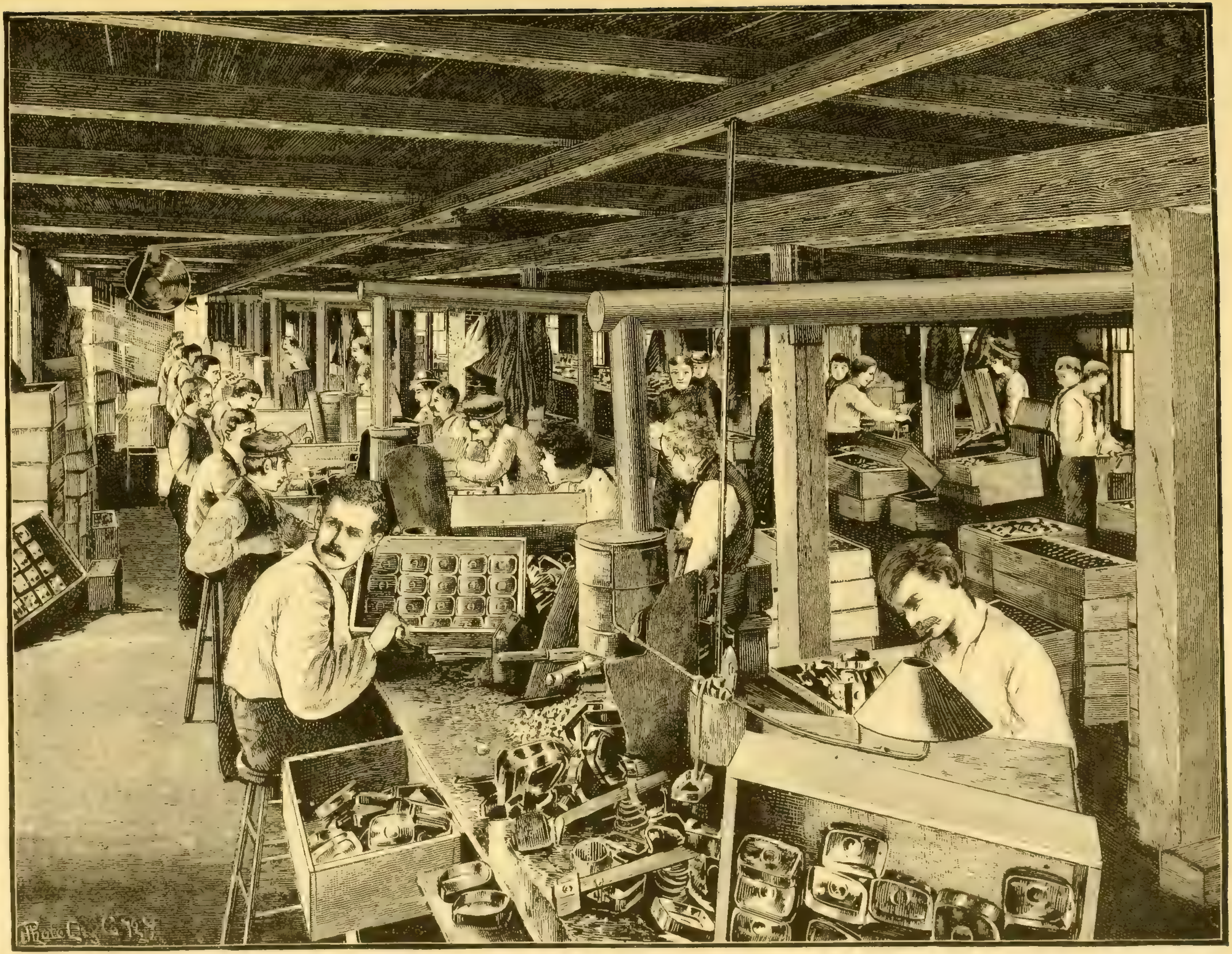
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Bathing-room at sardine cannery, Eastport, Me.: bathing-vats at left; men at right venting the cans. (Sect. v, vol. i, p. 517.)

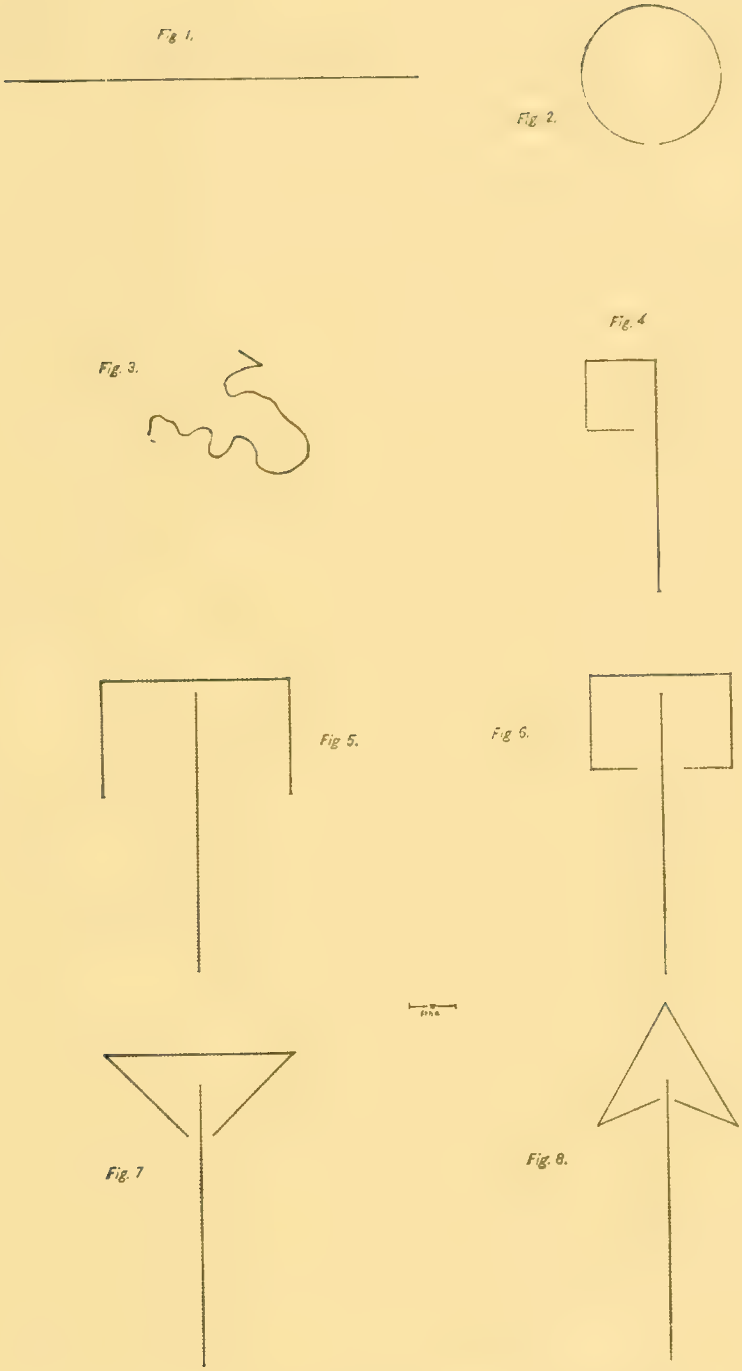
From a photograph by T. W. Smillie.



THE SARDINE INDUSTRY.

Making sardine cans at Eastport, Me. (Sect. v, vol. i, p. 518.)

From a photograph by T. W. Smillie.

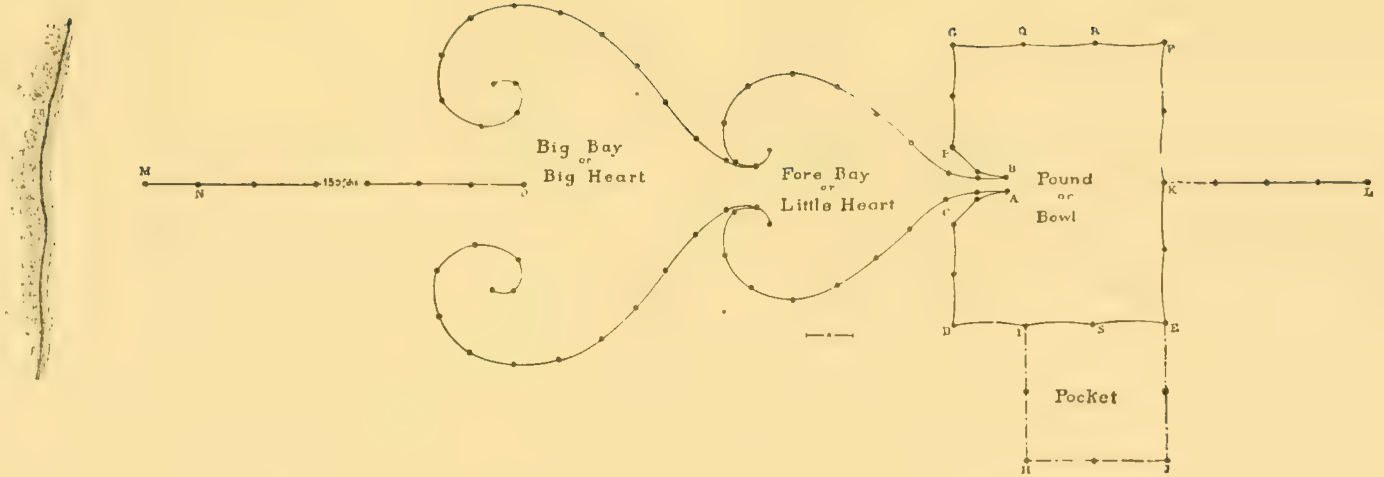


THE SPANISH MACKEREL FISHERY.

Methods of setting gill-nets at Sandy Hook. (Sect. v, vol. i, p. 546.)

FIG. 1. "Straight set."
FIG. 2. "Circle set."
FIG. 3. "Crooked set."
FIG. 4. "Hook set."
FIG. 5. "**T** set."
FIG. 6. "Square set."
FIG. 7. "Triangle set."
FIG. 8. "Harpoon set."

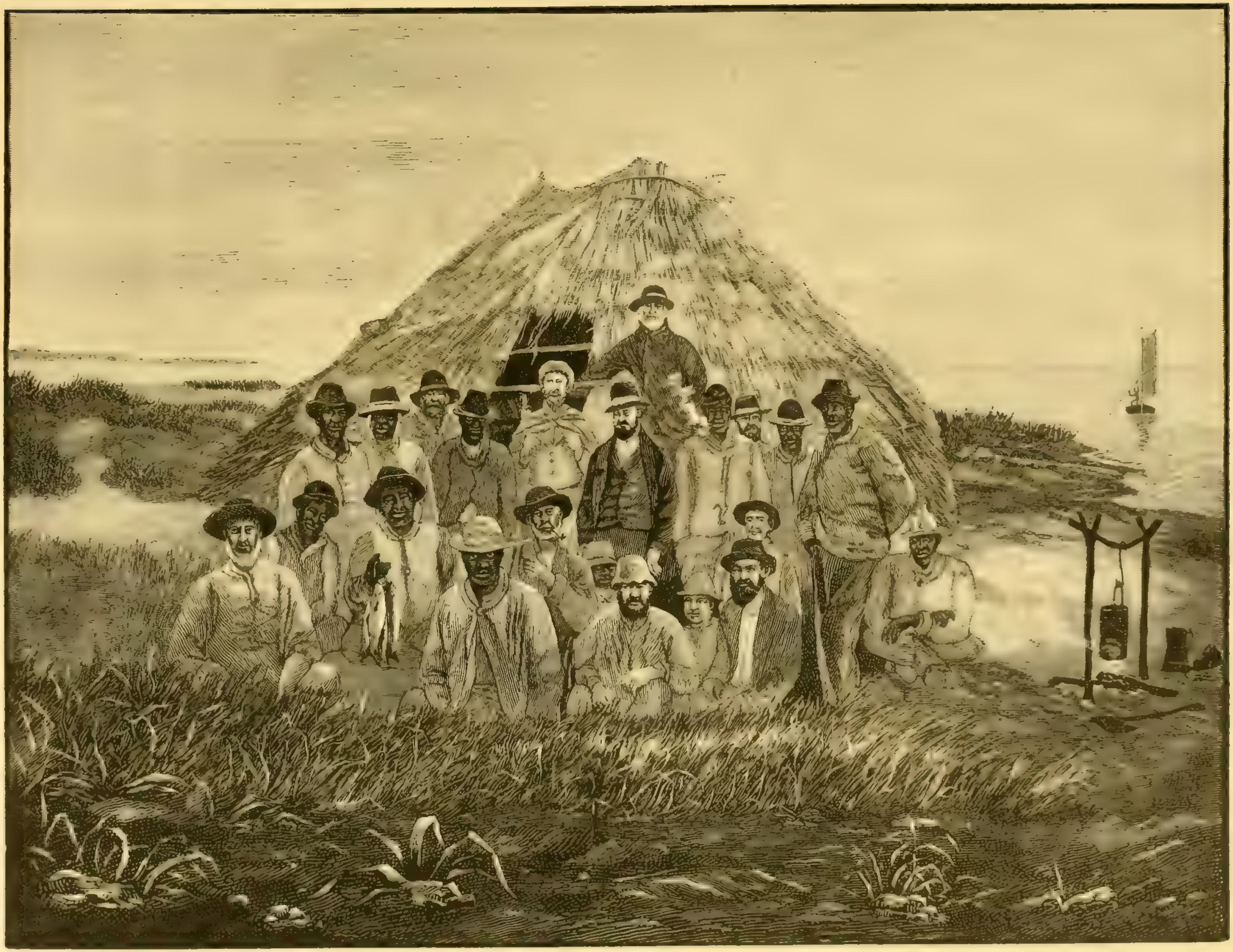
From Report U. S. Fish Commission, Part VIII, 1880



THE SPANISH MACKEREL FISHERY.

Chesapeake Bay pound-net. (Sect. v, vol. i, pp. 548, 549.)

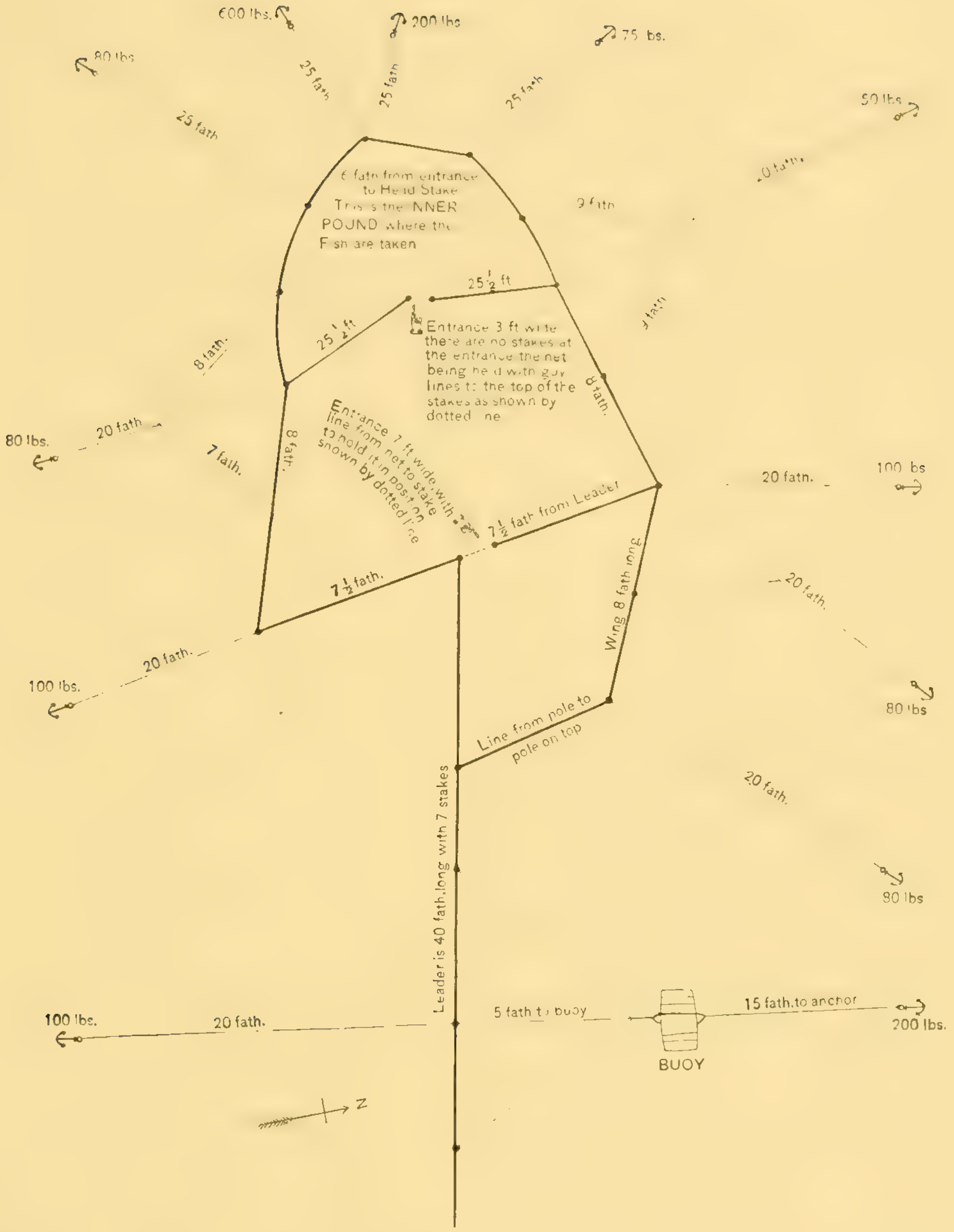
(Letters refer to method of fishing the net, described on page 549 of text.)



THE MULLET FISHERY.

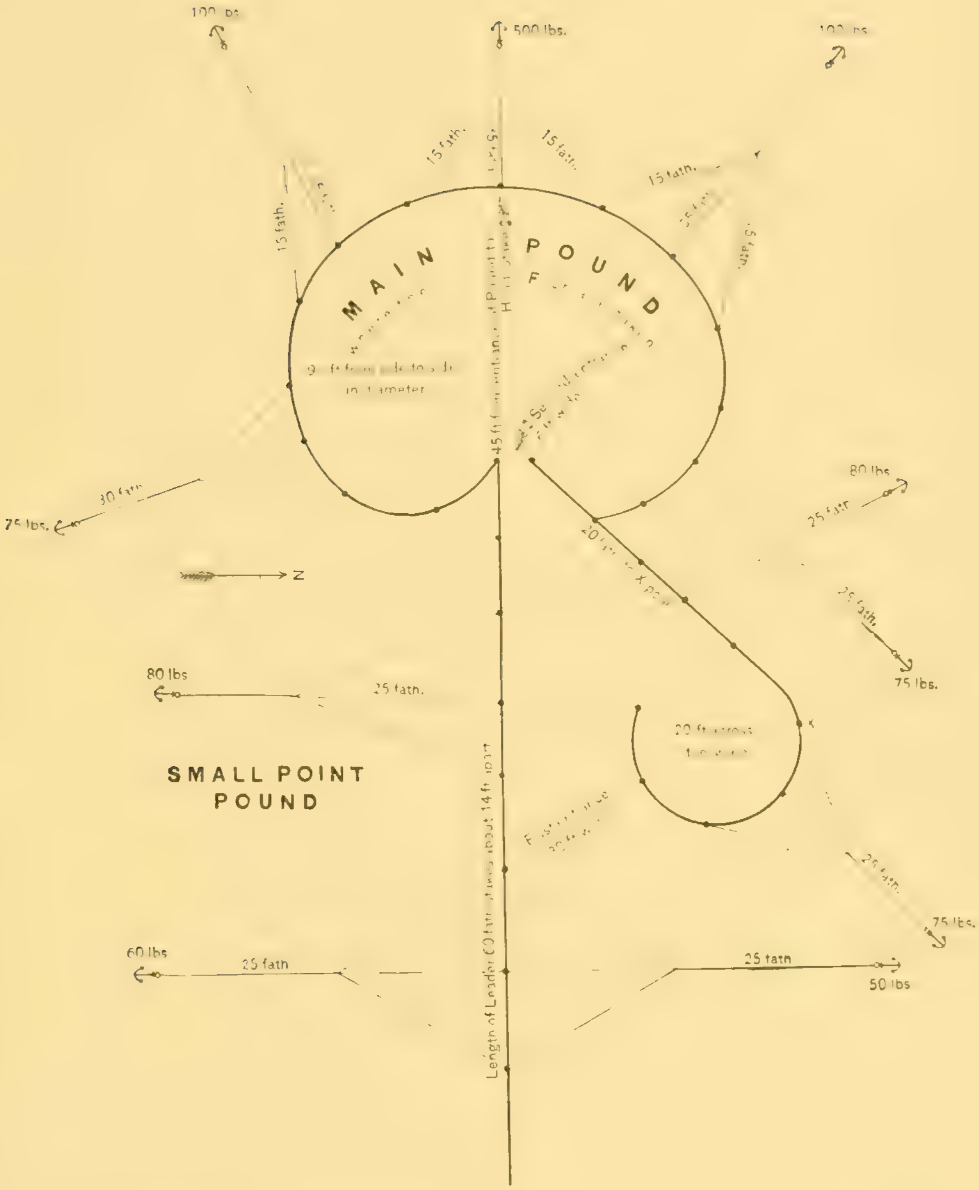
Camp of mullet fishermen, North Carolina. (Sect. v, vol. i, p. 562.)

From a photograph



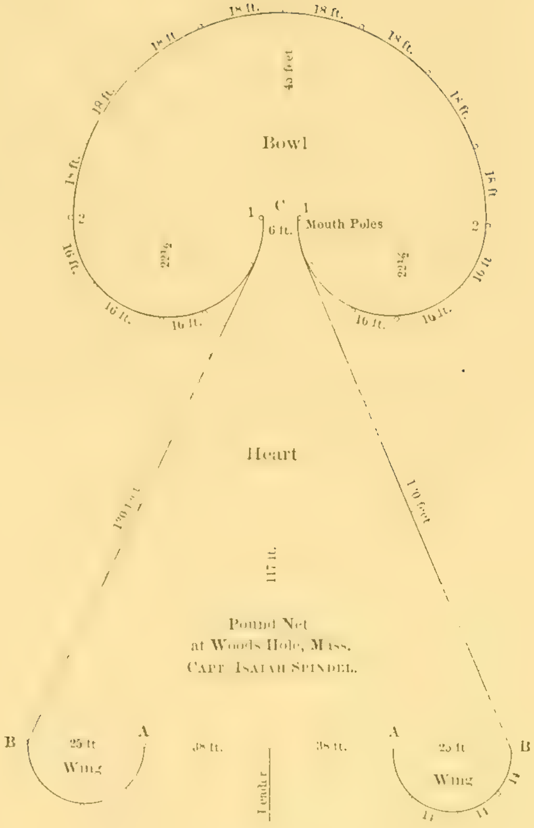
THE POUND-NET FISHERIES OF THE ATLANTIC STATES.

Pound-net at Bald Head, Me. (Sect. v, vol. i, p. 598.)



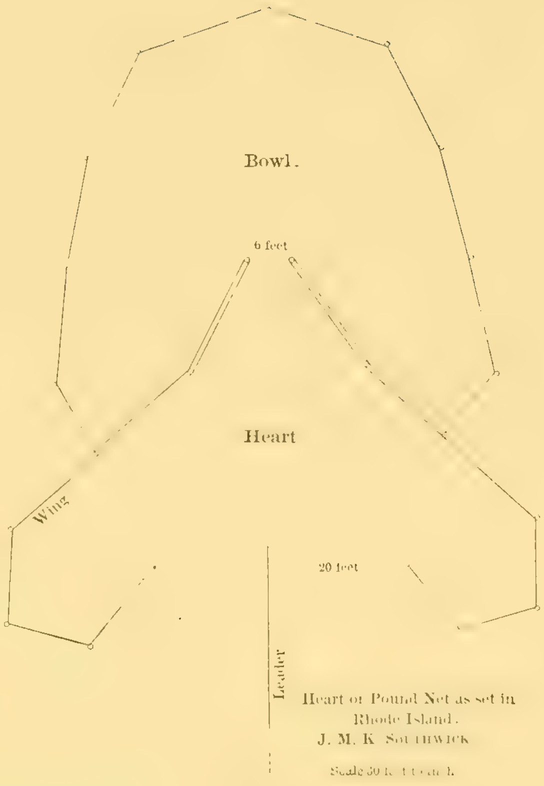
THE POUND-NET FISHERIES OF THE ATLANTIC STATES.

Pound-net at Small Point, Me. (Sect. v, vol. i, p. 598.)



Pound Net
at Woods Hole, Mass.
Capt. Isaiah Spindel.

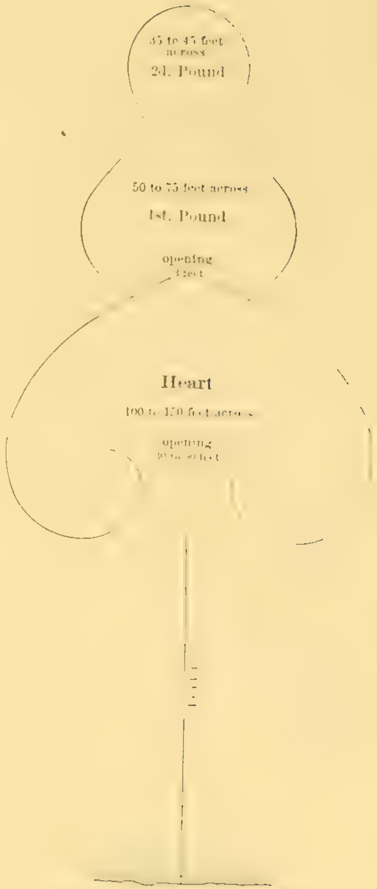
Fig. 1



Heart or Pound Net as set in
Rhode Island.
J. M. K. Southwick.

Scale 50 feet to 1 inch.

Fig. 2.



Slat Weir East Dennis, Mass. Bay.
Capt. Prince Crowell.

Fig. 3

THE POUND-NET FISHERIES OF THE ATLANTIC STATES.

(Sect. v. vol. i, pp. 599–604.)

From Report U. S. Fish Commission, Part I, 1871–'72.

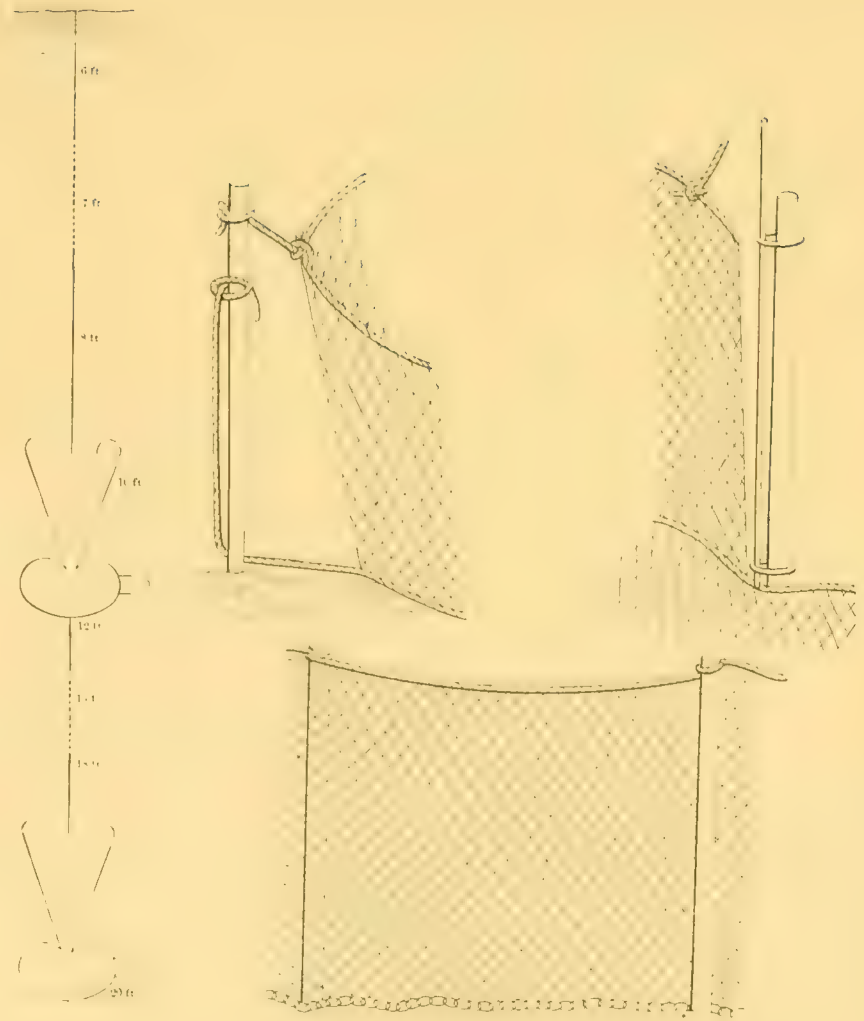


Fig. 1.—Pound-net at Waquoit, Mass.

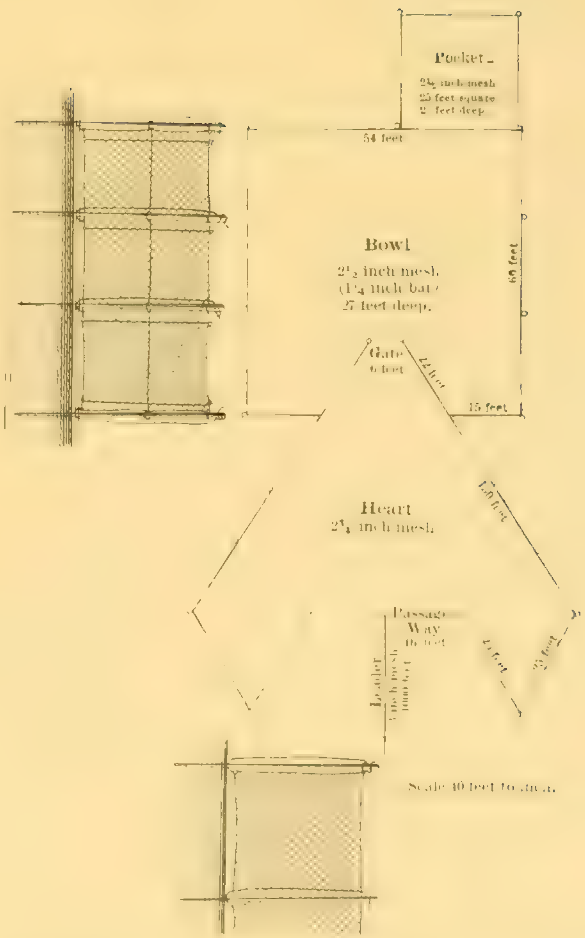


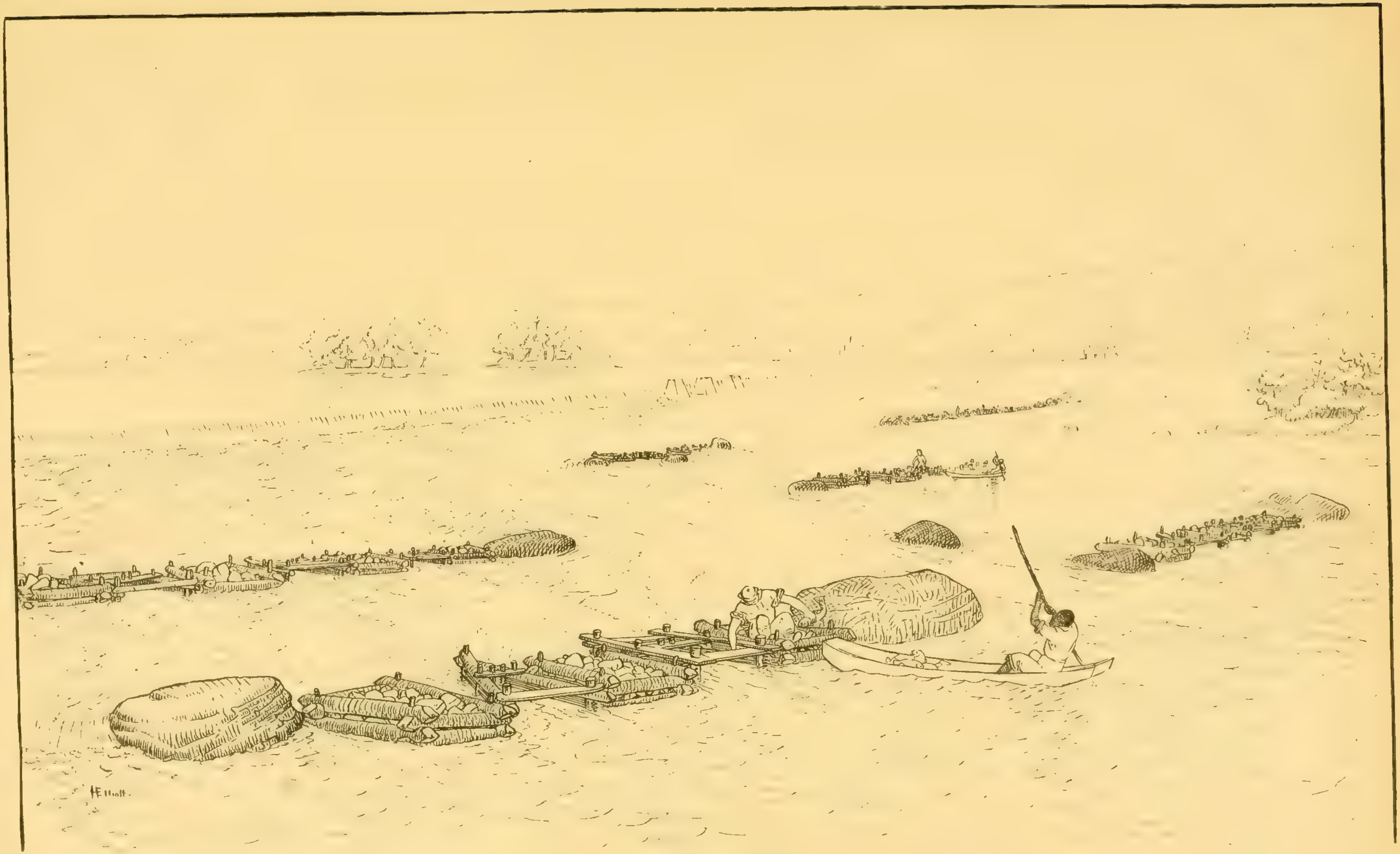
Fig. 2.—Heart or pound net at Quisset Harbor, Massachusetts.

THE POUND-NET FISHERIES OF THE ATLANTIC STATES.

(Sect. v, vol. i, p. 601.)

From Report U. S. Fish Commission, Part I. 1872–73.

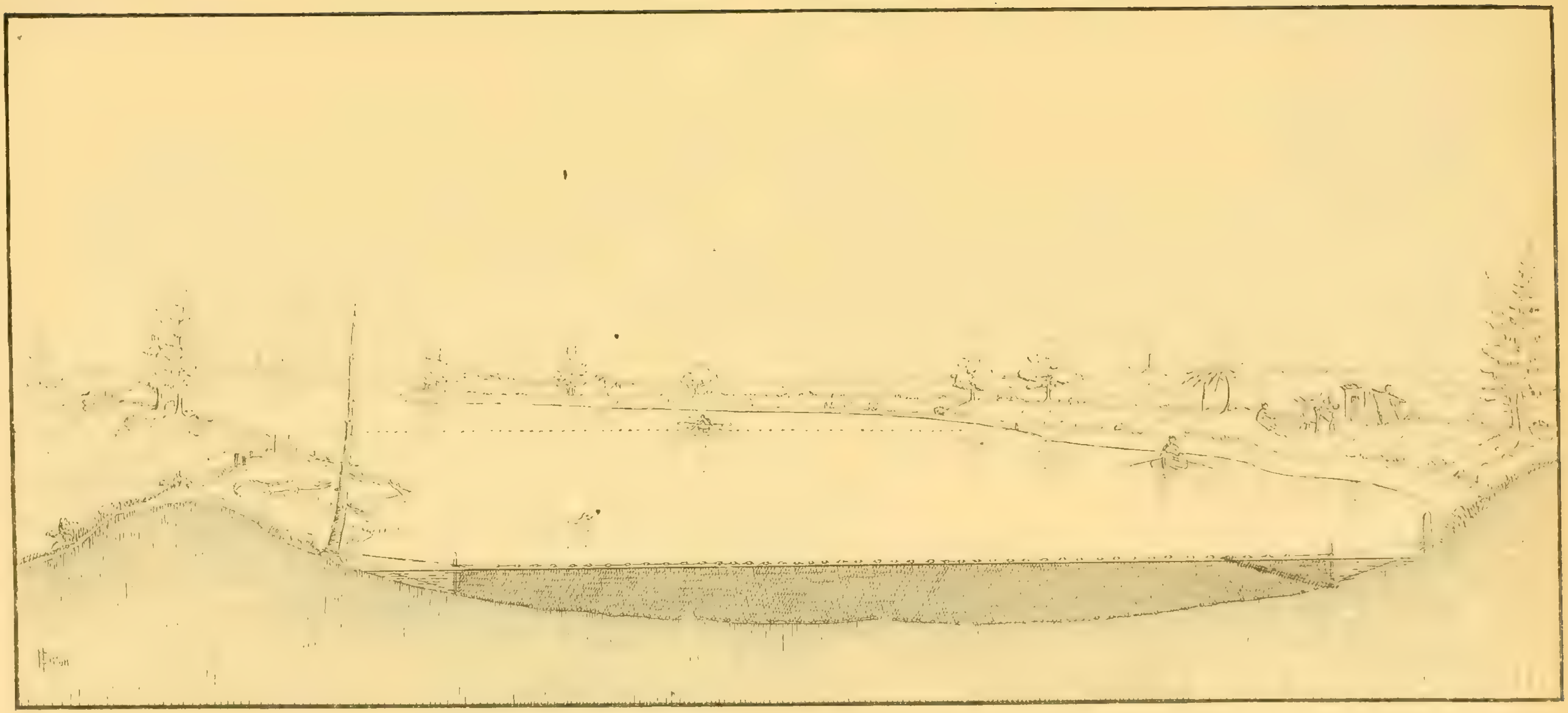
PLATE 154.



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Fishing with back and square traps in the Savannah River. (Sect. v, vol. i, p. 620.)

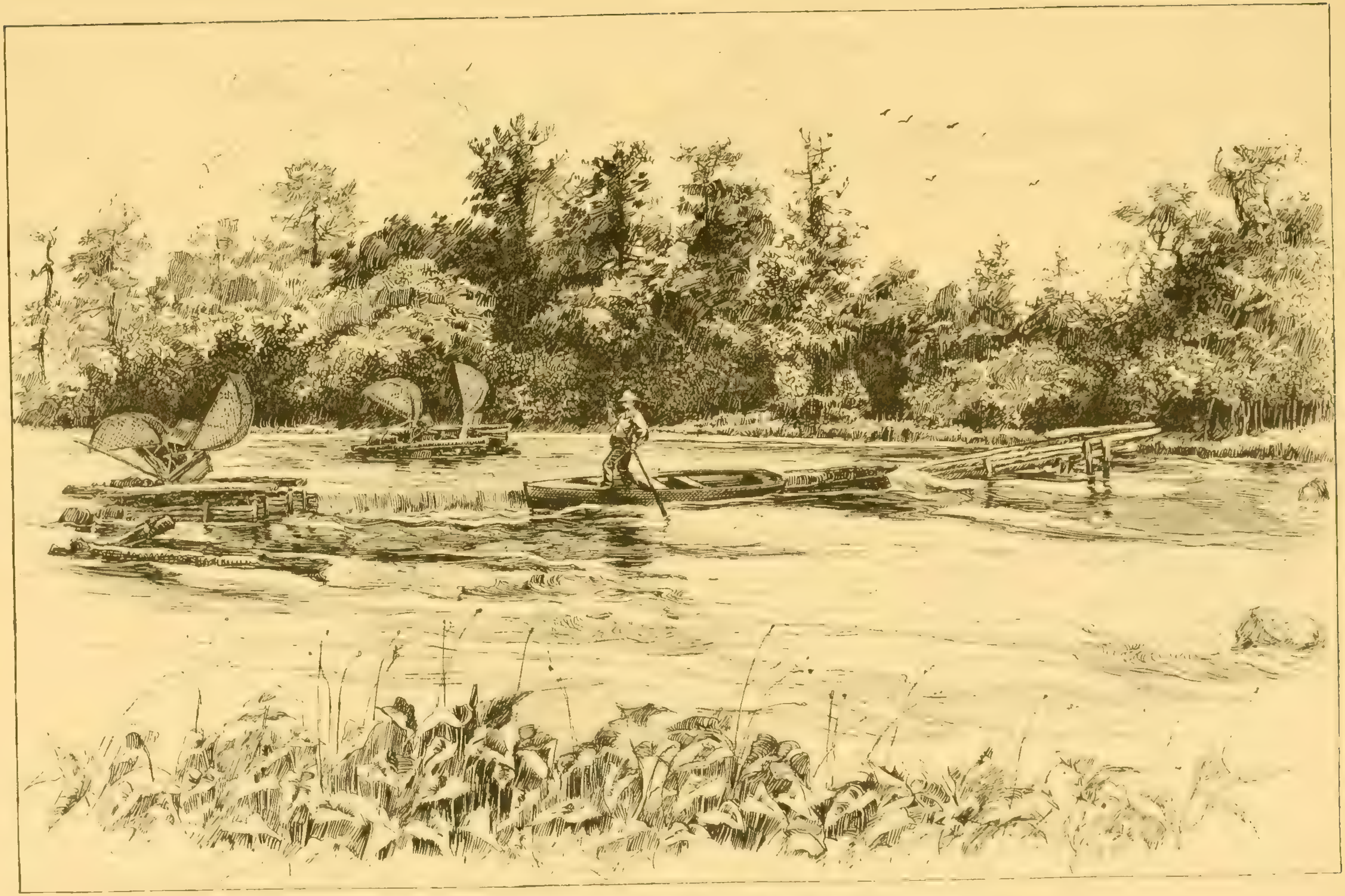
Drawing by H. W. Elliott



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Shad gill-nets in the Edisto River, South Carolina. (Sect. v, vol. i, p. 623.)

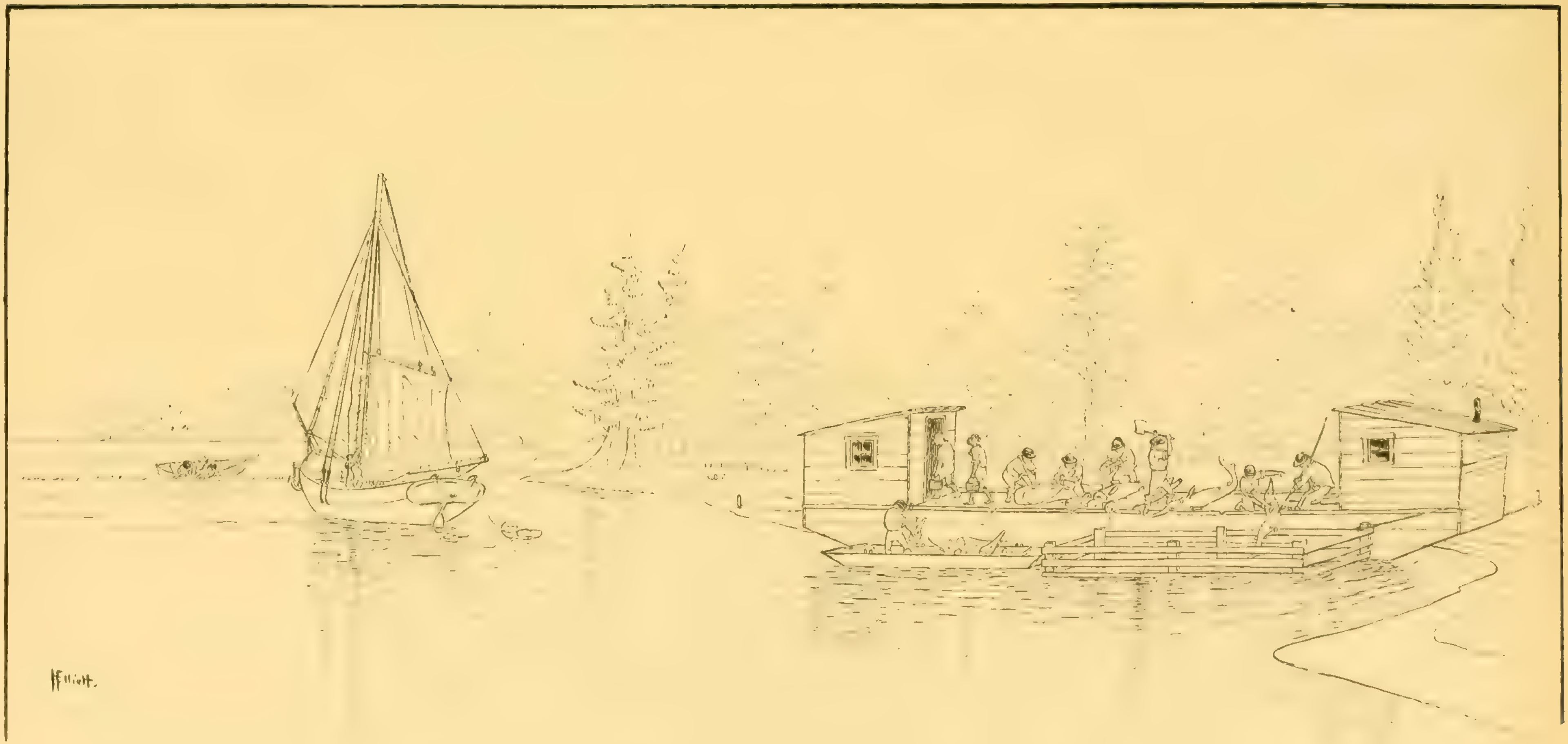
Drawing by H. W. Elliott.



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Fish-nets in the Peedee River. (Sect. v, vol. i, p. 624.)

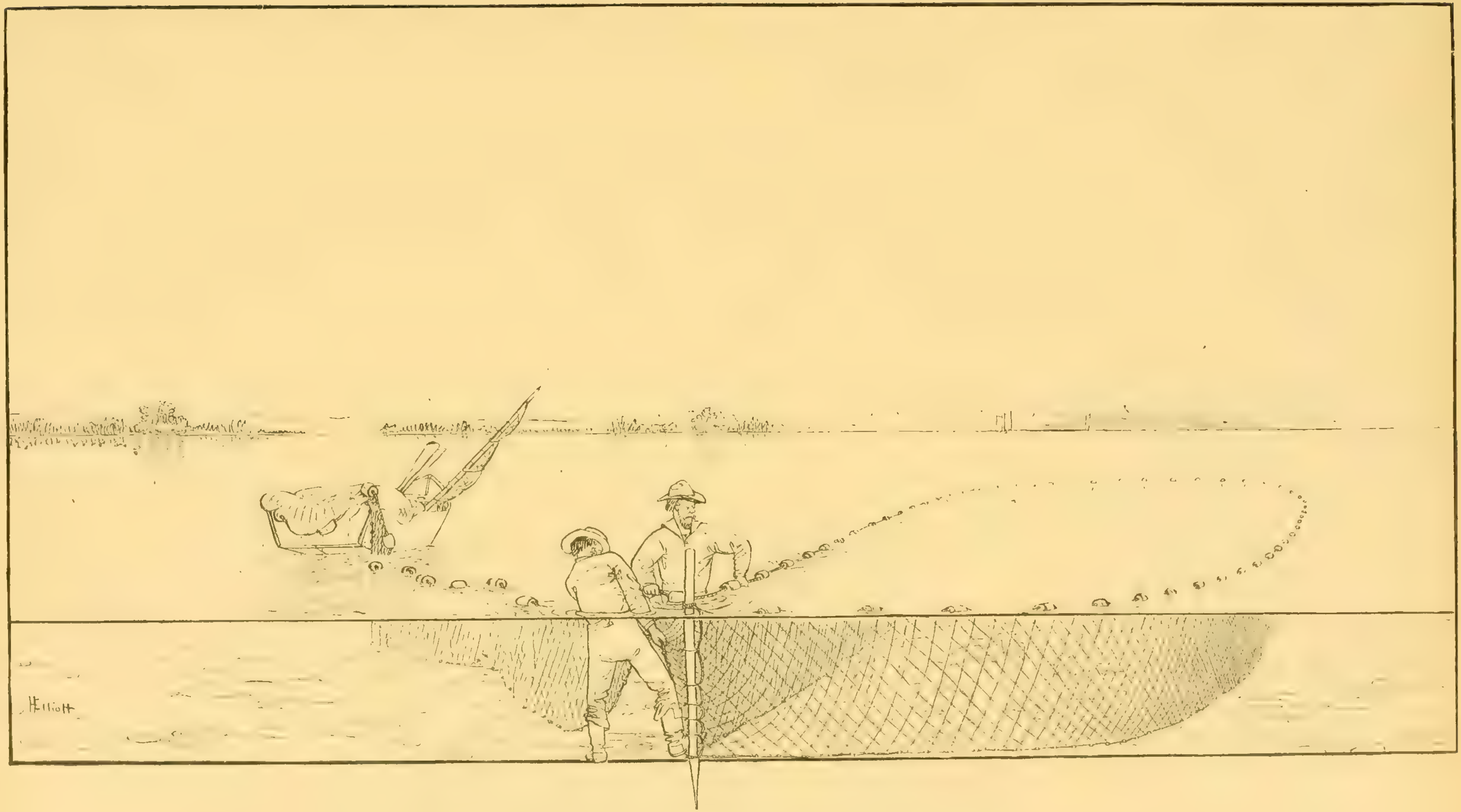
From a photograph.



THE RIVER FISHERIES OF THE ATLANTIC STATES.

A sturgeon camp on Winyah Bay, South Carolina: catching sturgeon in gill-nets; the pound for keeping them alive; unheading; saving caviare. (Sect. v, vol. i, p. 625.)

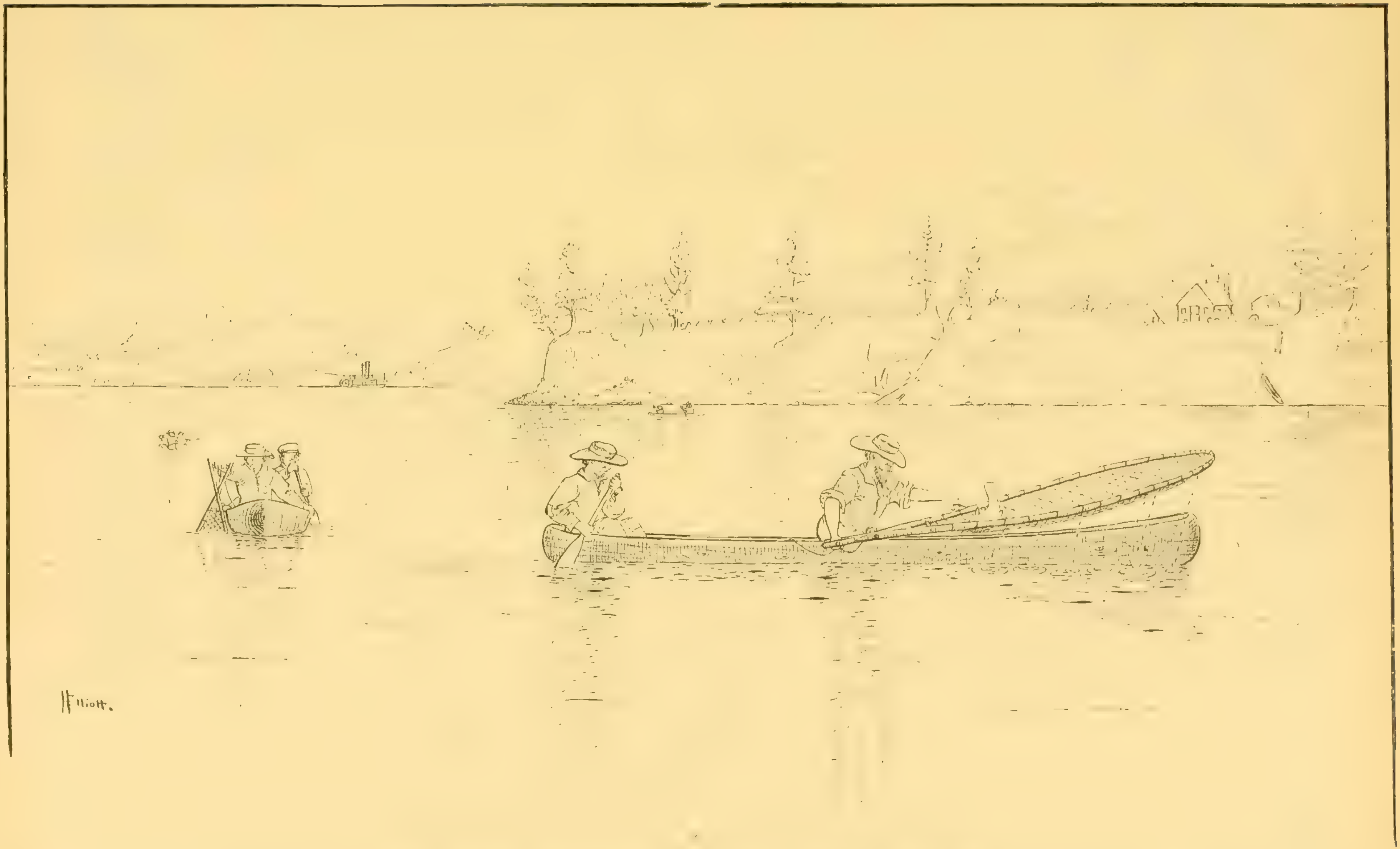
Drawing by H. W. Elliott



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Drag-net fishing in Neuse River, North Carolina: footing-up the net. (Sect. v, vol. i, p. 628.

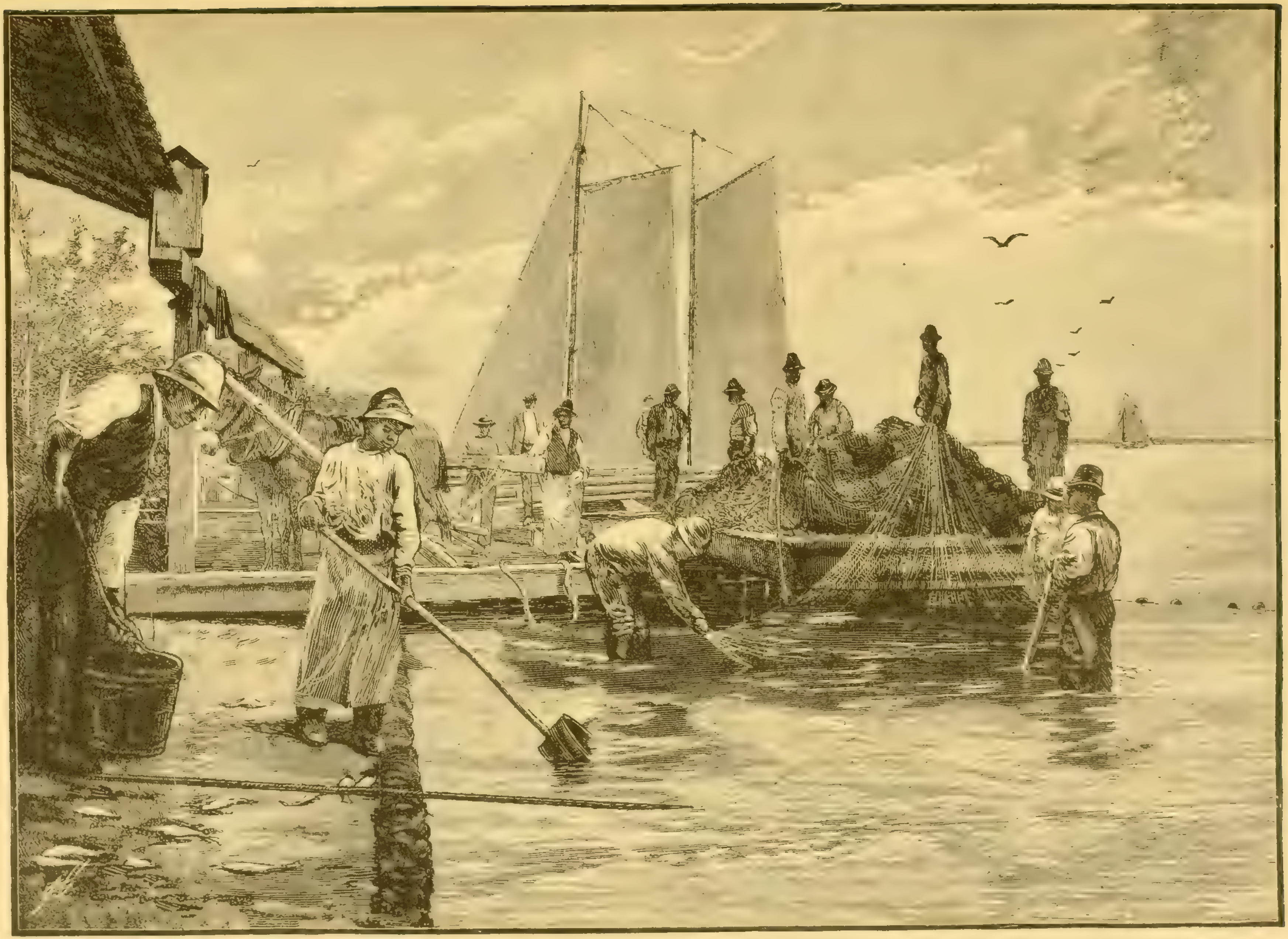
Drawing by H. W. Elliott.



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Skim-net fishing for shad in the Neuse River, North Carolina. (Sect. v, vol. i, p. 629.)

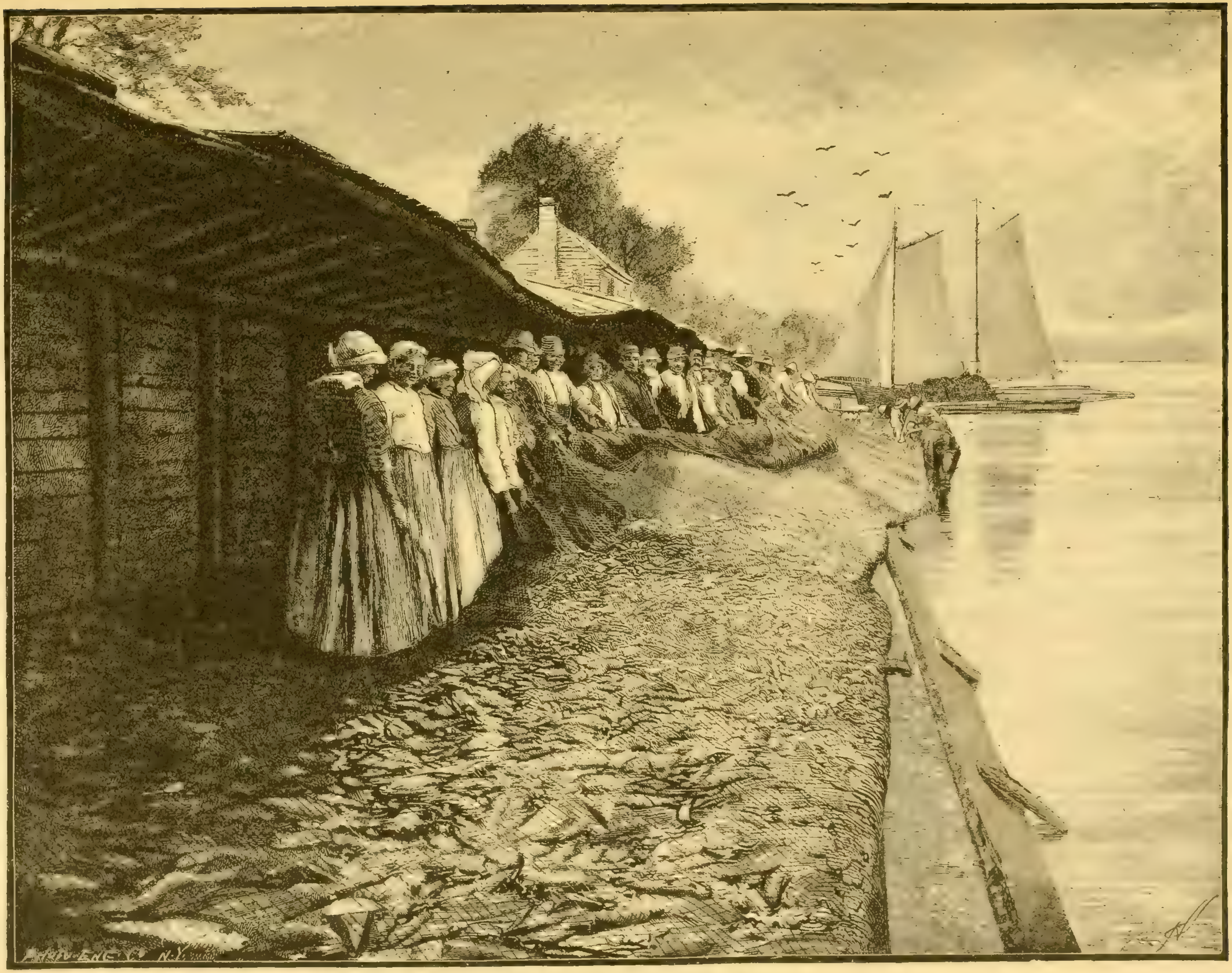
Drawing by H. W. Elliott.



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Haul-seine fishing at Sutton Beach, Albemarle Sound, North Carolina: boating the seine. (Sect. V, vol. I, p. 636.

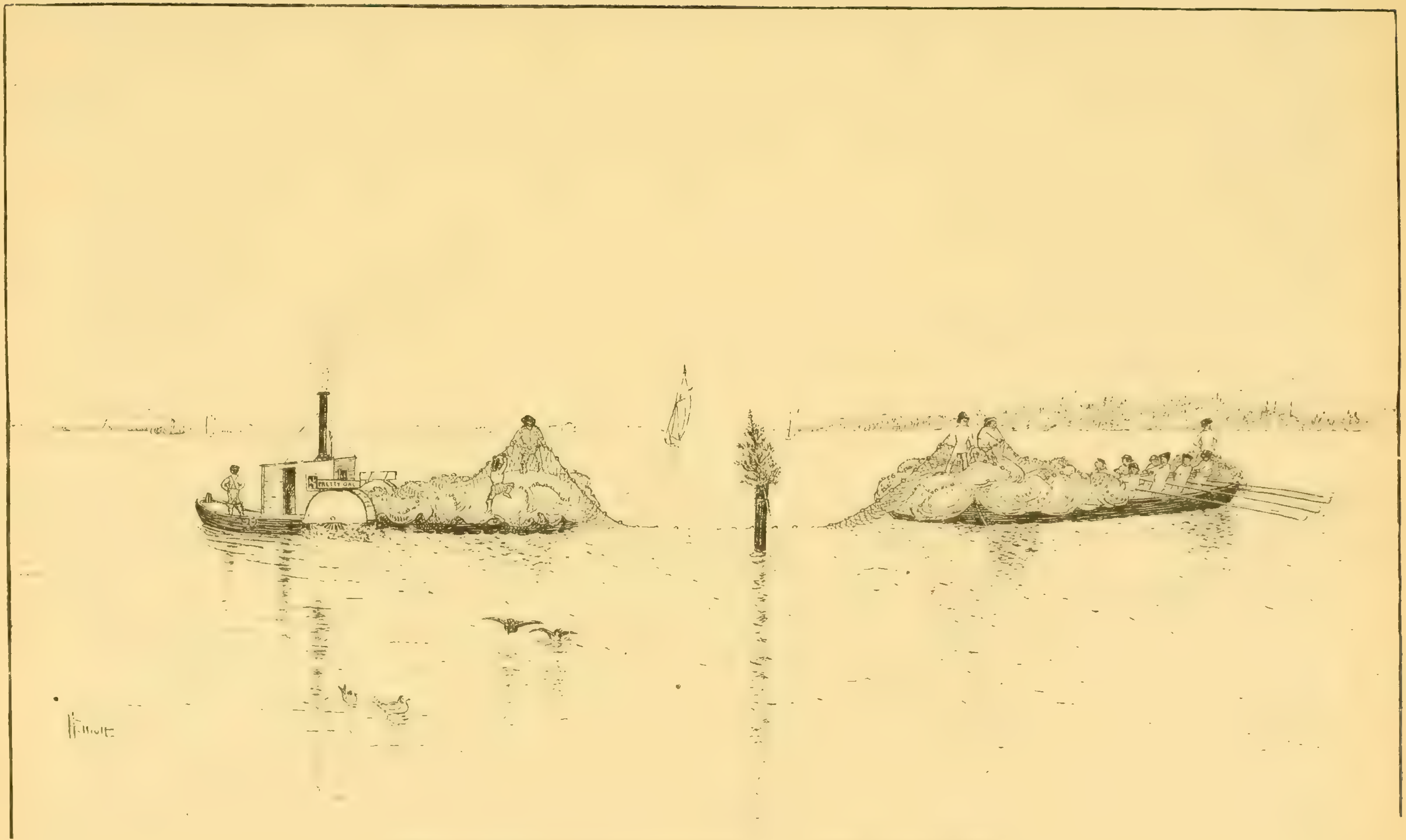
From a photograph.



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Haul-seine fishing at Sutton Beach, Albemarle Sound, North Carolina: a large haul of alewives. (Sect. v, vol. i, p. 636.

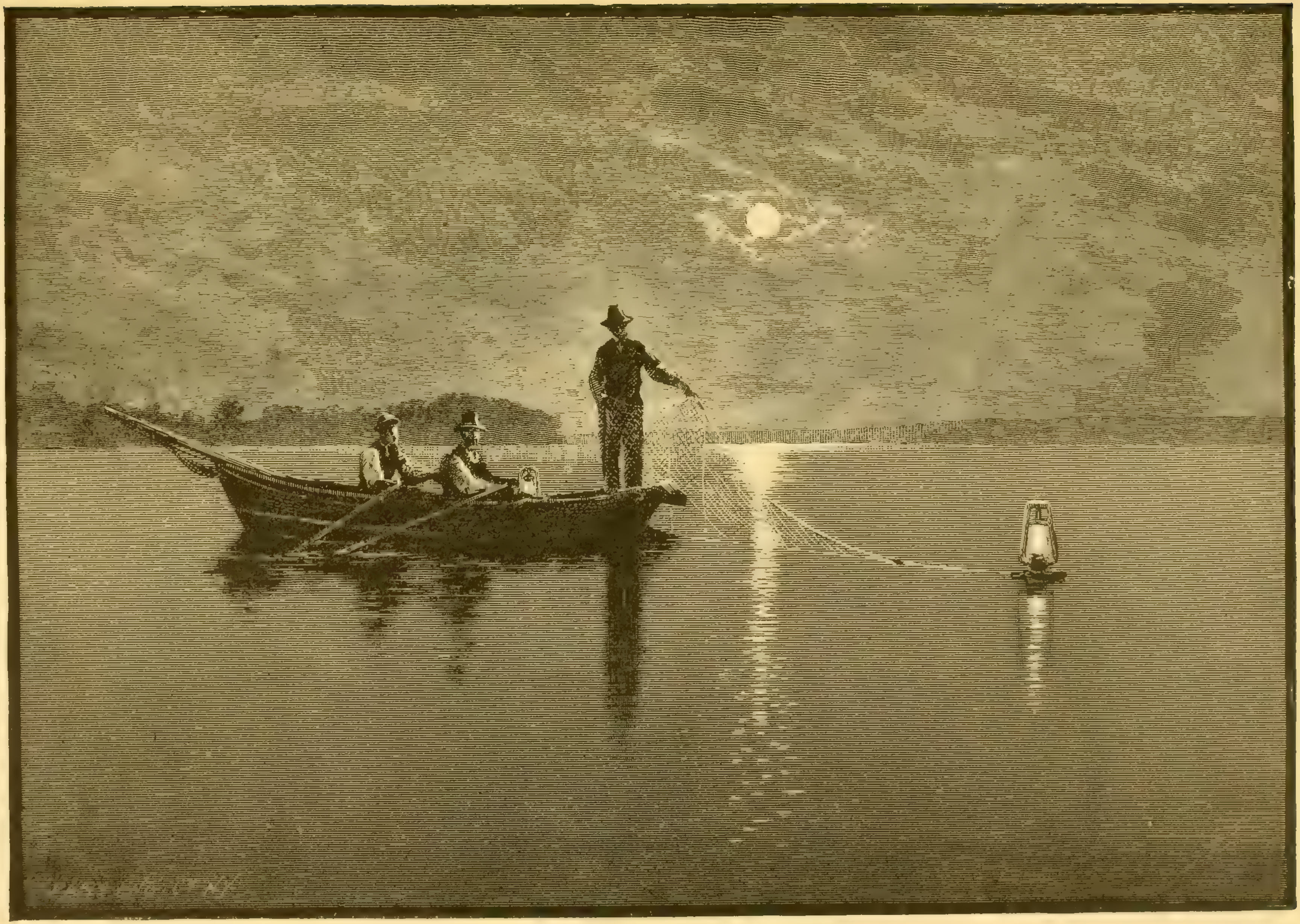
From a photograph.



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Shad fishing in Albemarle Sound: laying out the seine. (Sect. v, vol. i, p. 636.)

Drawing by H. W. Elliott



THE RIVER FISHERIES OF THE ATLANTIC STATES.

Shad fishing at night on the Susquehanna River: laying out the gill-net. (Sect. v, vol. i, p. 652.)

From a photograph.

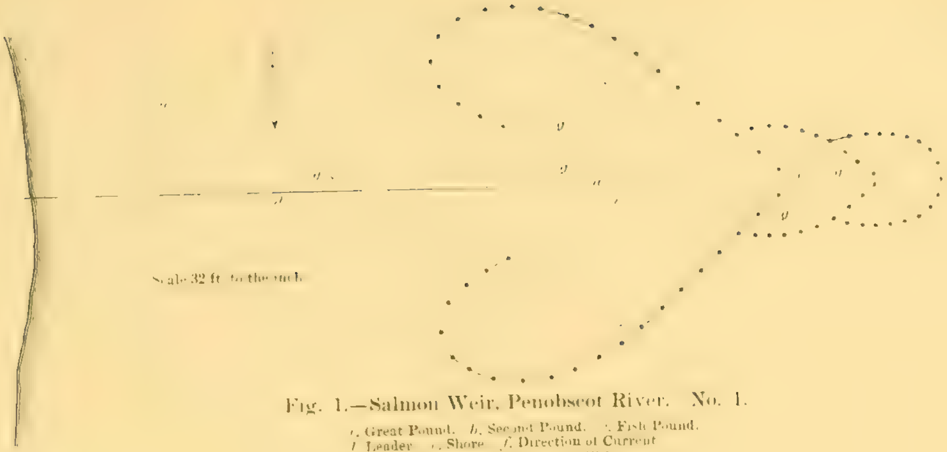
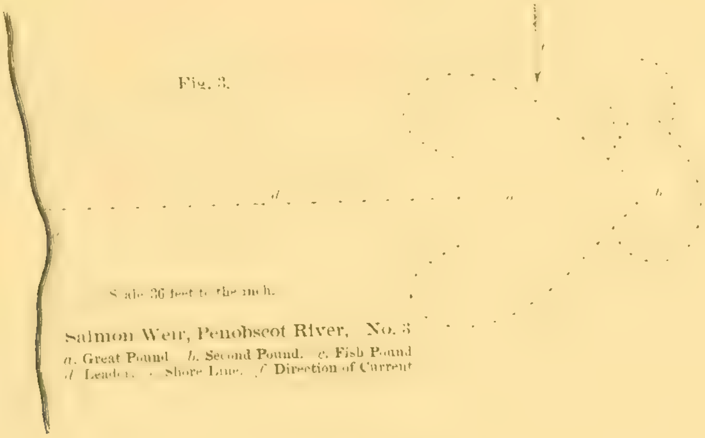


Fig. 1.—Salmon Weir, Penobscot River. No. 1.

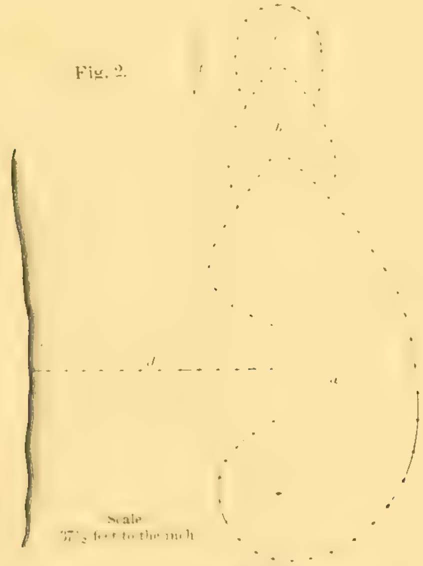
a. Great Pound. b. Second Pound. c. Fish Pound.
d. Leader. e. Shore. f. Direction of Current.
g. ——— Course of Fish.

Fig. 3.



Salmon Weir, Penobscot River, No. 3
a. Great Pound. b. Second Pound. c. Fish Pound
d. Leader. e. Shore Line. f. Direction of Current

Fig. 2.

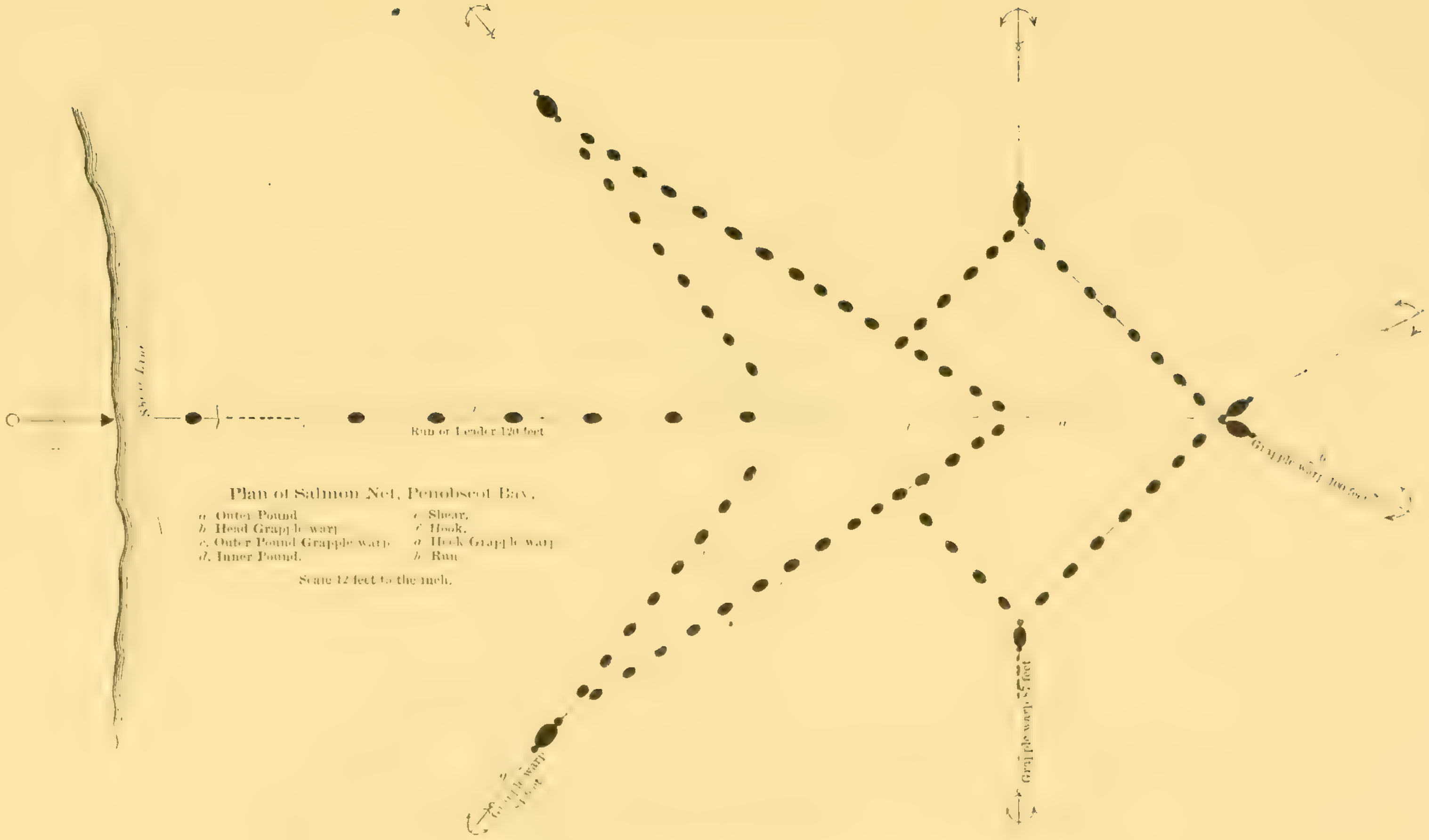


Salmon Weir, Penobscot River, No. 2
a. Great Pound. b. Second Pound. c. Fish Pound
d. Leader. e. Shore. f. Direction of Current.

THE RIVER FISHERIES OF MAINE.

(Sect. v, vol. i, p. 680.)

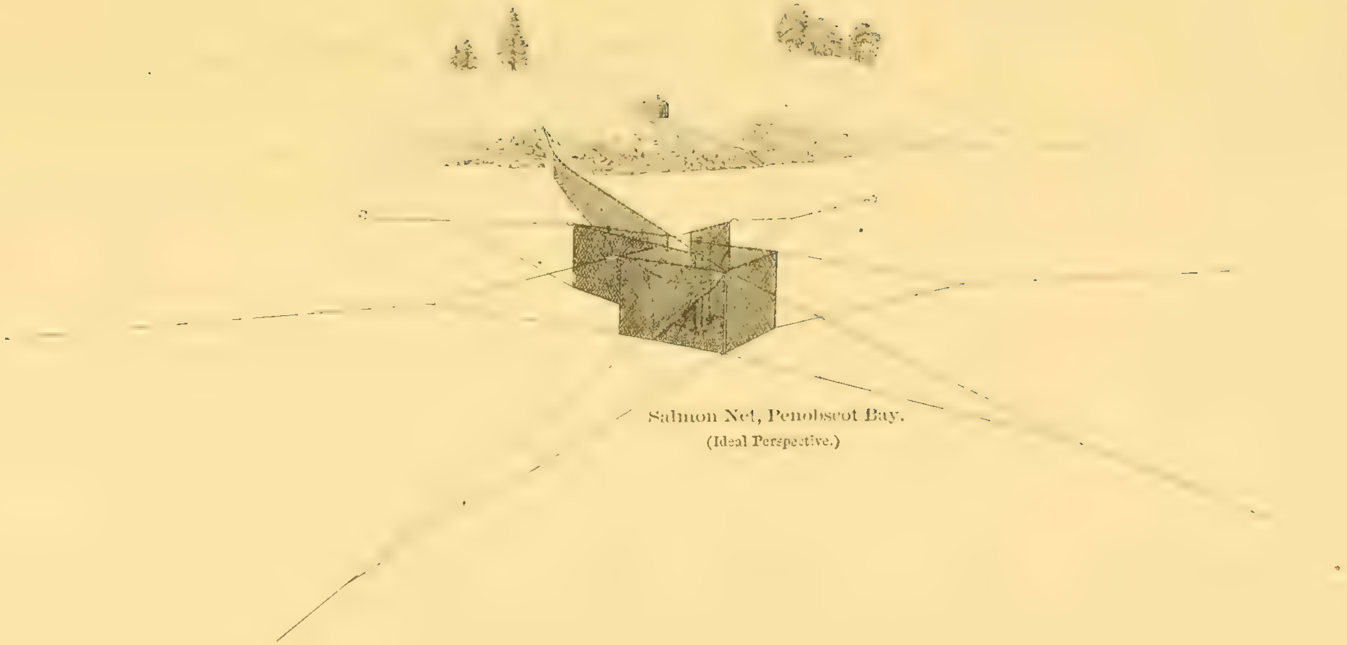
From Report U. S. Fish Commission, Part II. 1872-'73.



THE RIVER FISHERIES OF MAINE.

Plan of salmon-net in Penobscot Bay, Maine. (Sect. v, vol. i, p. 682.)

From Report U. S. Fish Commission Part II 1872-73.



THE RIVER FISHERIES OF MAINE.

Ideal perspective of salmon net in Penobscot Bay, Maine. (Sect. V, vol. I, p. 682.)

From Report U. S. Fish Commission, Part II, 1872-'73.

Plate 167.

DIAGRAM OF SHAD-WEIR, KENNEBEC RIVER, MAINE.

The leader is a straight row of plain stakes 2½ to 3½ feet apart, running out from the shore, and varies in length according to the conformation of the bottom. The walls of the three pounds are formed by driving stakes into the bottom of the river and covering them with net of 2 to 2½ inch mesh, of 16 to 24 thread cotton twine. None of the pounds have any other bottom than the bottom of the river. The depth of water in the fish pound is from 2 to 15 feet at low tide.

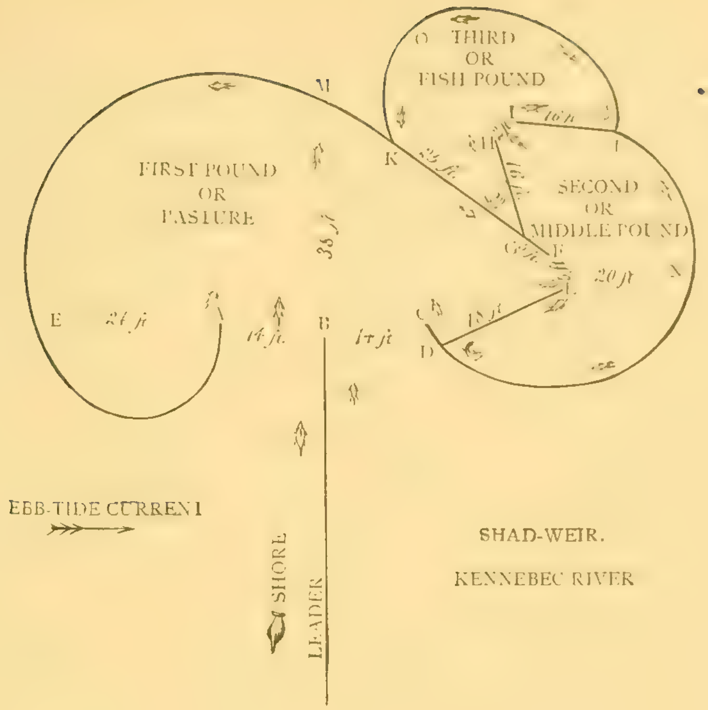
In building a weir the points lettered are fixed by measurement, and all others by the eye.

The distances are as follows:

a to *b*, 14 feet. *b* to *c*, 14 feet. *c* to *d*, 4 feet. *d* to *e*, 18 feet. *e* to *f*, 5 feet. *f* to *g*, 5 feet. *g* to *k*, 25 feet. *g* to *h*, 16 feet. *h* to *i*, 2 feet. *i* to *j*, 16 feet. *b* to *m*, 38 feet. *e* to *n*, 20 feet. *i* to *o*, 18 feet. *a* to *l*, 24 feet.

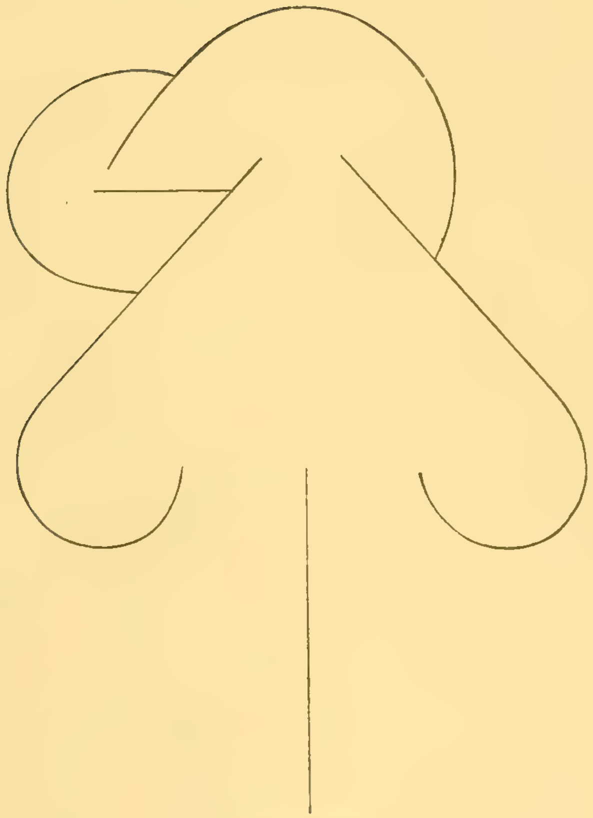
The above dimensions are given by Mr. J. L. Browne, of Bowdoinham, as those of his weir, which is of usual form and dimensions.

A weir of this pattern is intended to take fish either ascending or descending the river. The fish outlines show their course in entering the weir and in working forward to the fish pound. From the fish pound they are taken with a "tuck" or "purse-seine." This implement has a wooden staff at either end, corks on the upper edge, and heavy sinkers on the lower edge. To the lower edge are also attached rings, through which runs the purse line, which passes up the staves to the hands of the fishermen; one staff is planted at *i* and the net is then paid out from the boat across the entrance and around by the wall at *g*, *k*, *o*, &c., until the two staves are brought together again at *i*, when the seine is pursed up, by hauling on the purse line, and the whole net with the inclosed fish is then hauled aboard the boat.



SHAD-WEIR.

KENNEBEC RIVER



Second form

THE RIVER FISHERIES OF MAINE.

(Sect. v, vol. i, p. 684. See, also, explanation opposite.

Plate 168.

BAG-NET FISHING FOR SMELTS UNDER THE ICE, PENOBSCOT RIVER, MAINE.

A hole is cut in the ice, at right angles with the current, 30 feet long and 1 foot wide. Poles 40 feet long reach down 34 or 35 feet into the water.

The "jumper," a short rope, is made fast to the pole, runs down through the ice, and is toggled beneath. This keeps the pole down.

The "back line" runs from the top of the pole to a toggle under the ice 10 feet away, on a line with the poles.

The "end guy" runs from the foot of the pole to a toggle above the ice, about 25 feet from the pole.

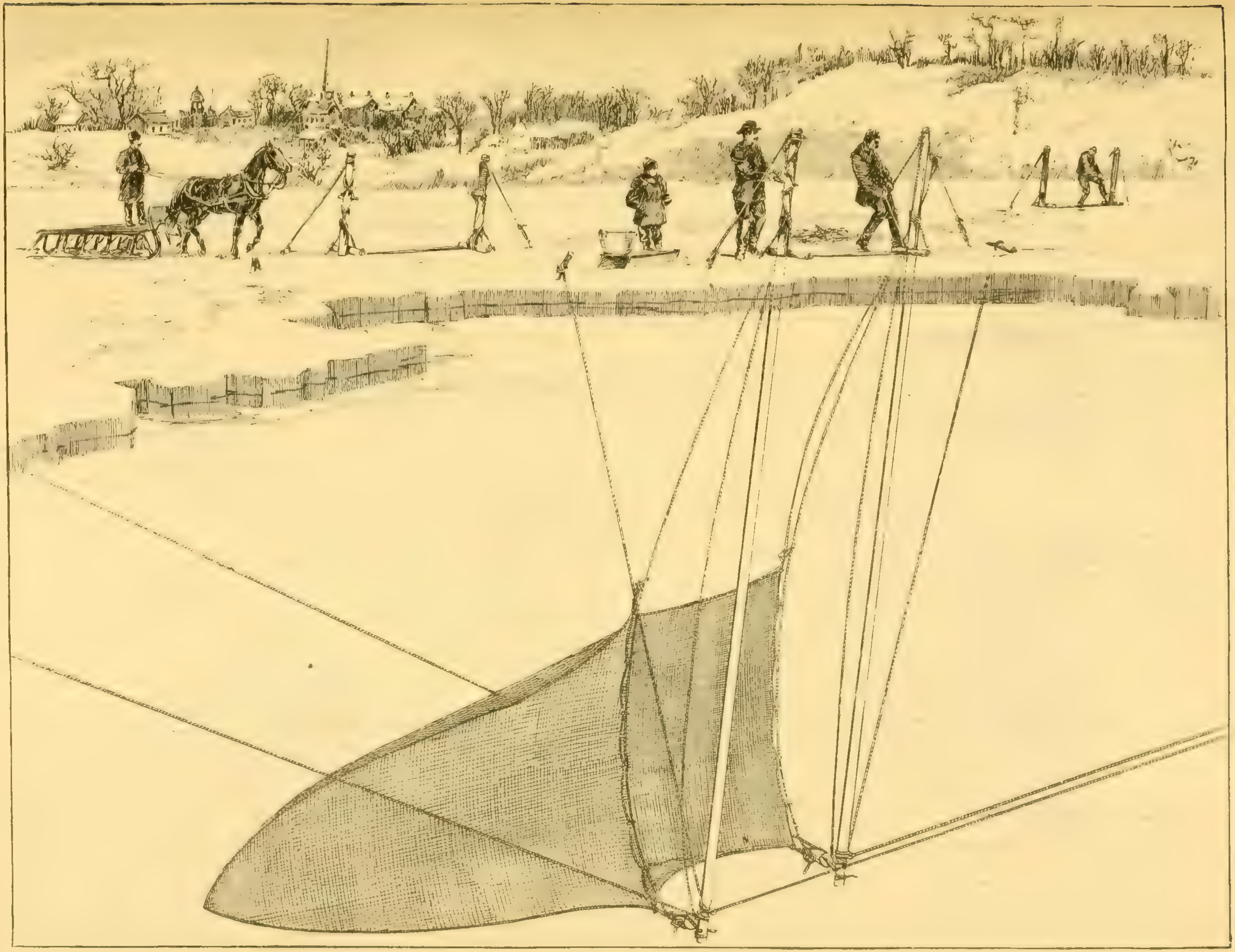
The "ebb-tide guy," 80 feet long, runs from the foot of the pole up the stream to a toggle above the ice.

The "flood-tide guy," 80 feet long, runs from the foot of the pole to a toggle in the ice.

The down-haul part of the halliards reeves through a block at the foot of the pole and thence passes up through the hole to a thimble near the top of the pole.

The up-haul part of the halliards reeves through six thimbles on the hoist-rope of the net, and passes thence up through the hole and reeves through a thimble near the top of the pole, where it is continuous with the down-haul part. When the net is set, to prevent the halliards yielding to the draft of the tide, their bights are crossed back of the pole, brought forward again, and toggled as shown.

The "opener" is made fast to the upper corner of the net. After the halliards are hauled home and toggled, the mouth of the net is opened by this rope, the upper end of which is made fast to any convenient part above.



THE RIVER FISHERIES OF MAINE.

Bag-net fishing for smelts under the ice, Penobscot River, Maine. (Sect. v, vol. 1, p. 691. See, also, explanation opposite.

From sketch by C. G. Atkins.

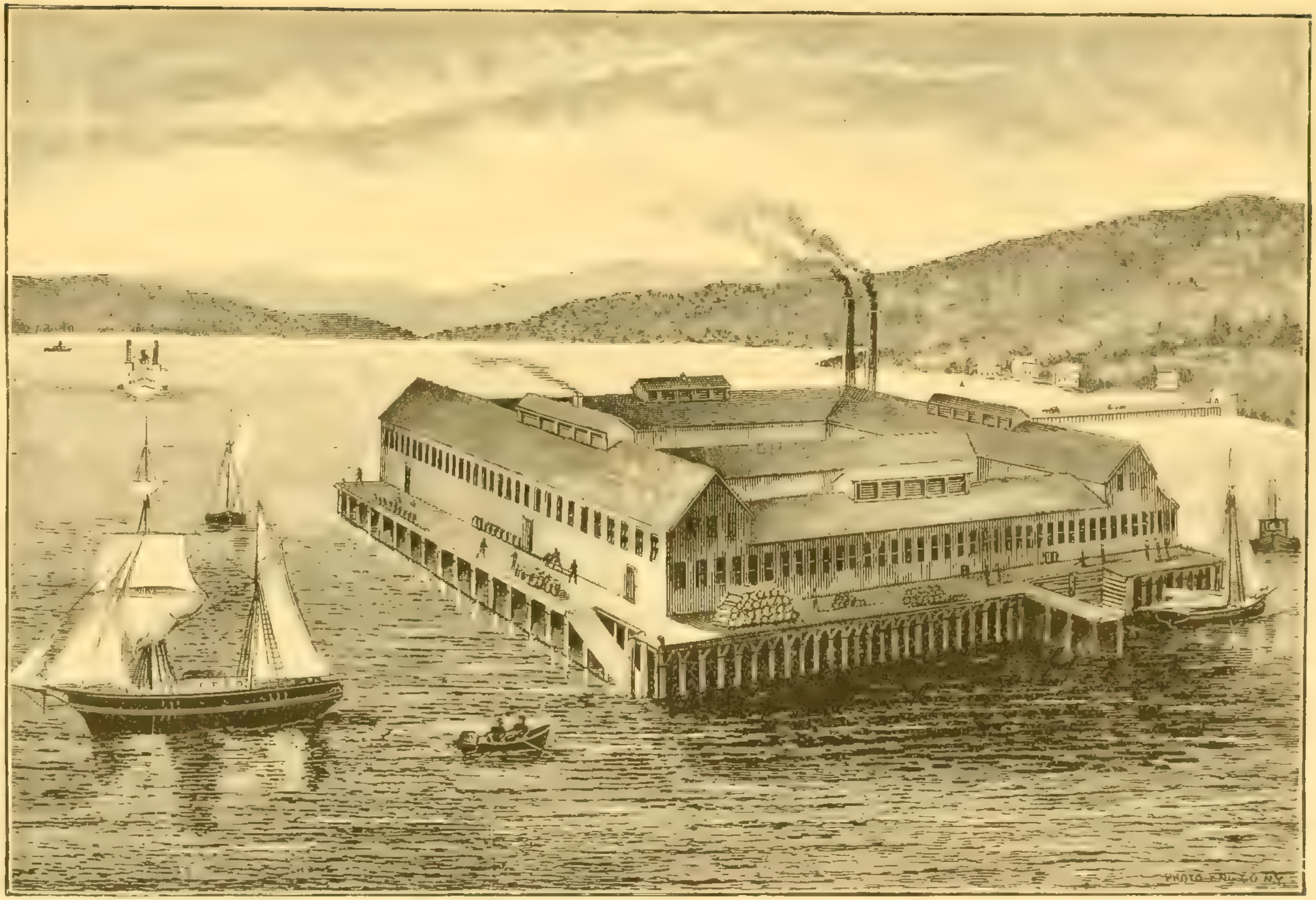
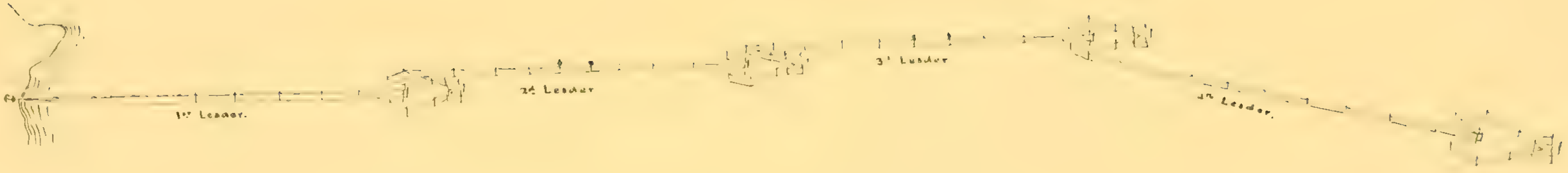


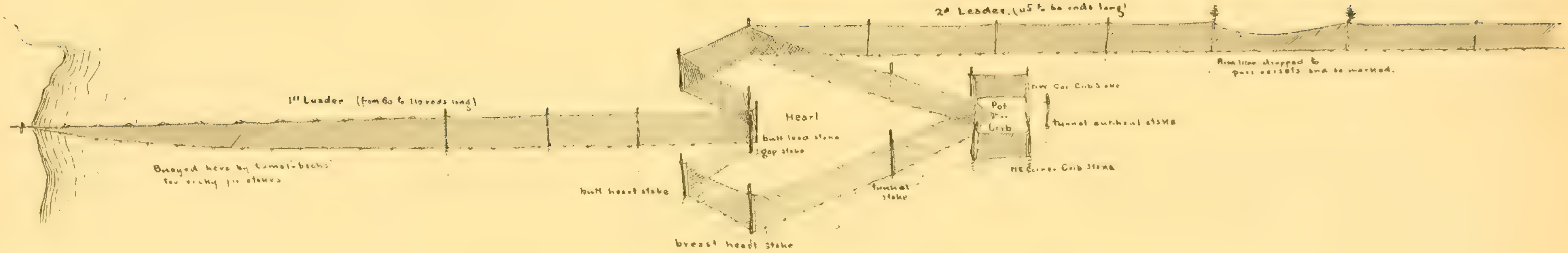
PHOTO ENG. CO. N.Y.

THE SALMON INDUSTRY OF THE PACIFIC COAST.

Salmon cannery at Astoria, Oregon. (Sect. v. vol. i, p. 745.)

From a photograph



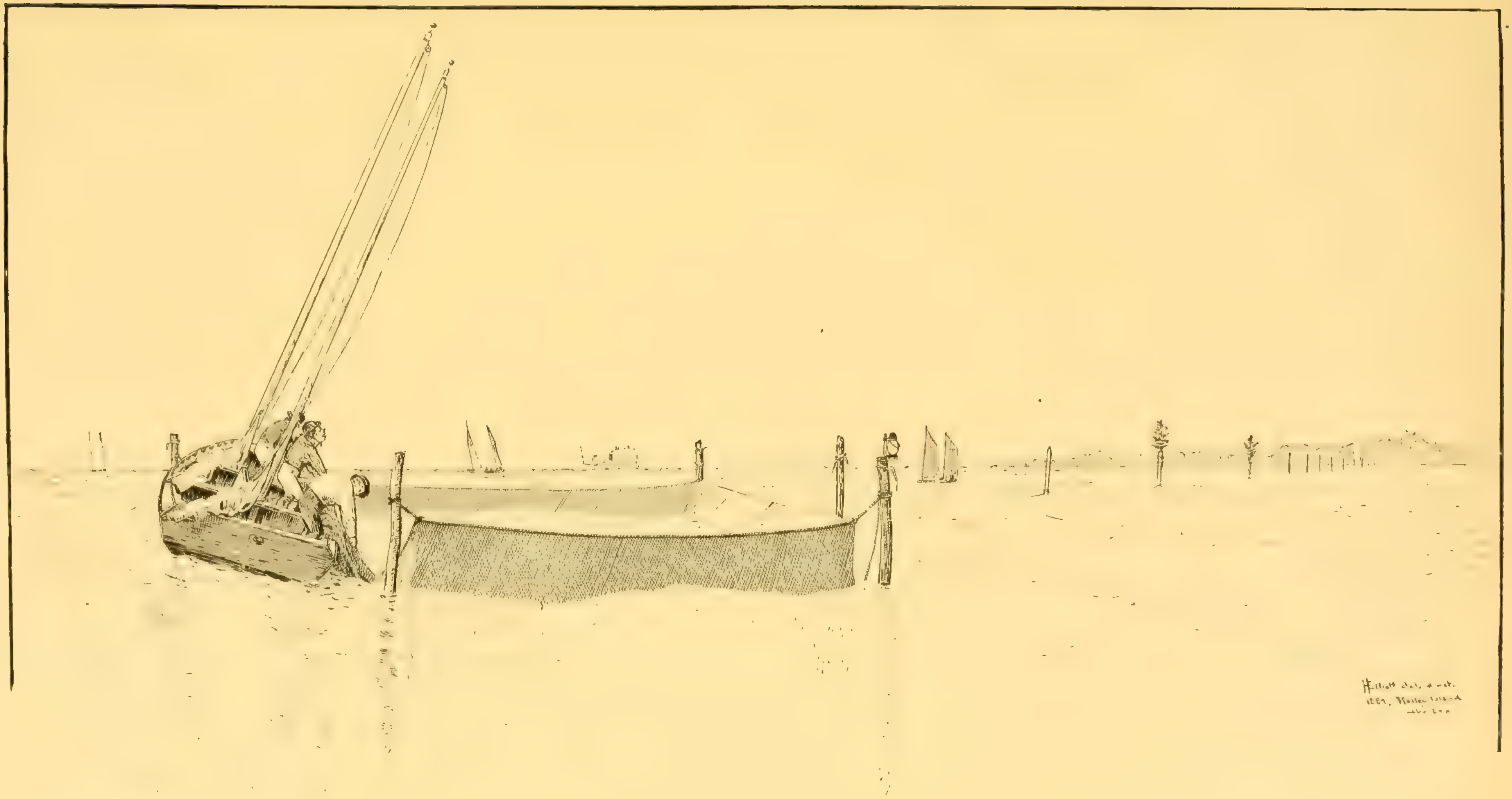

1st Leader (from 60 to 110 rods long)
Buoyed here by Camel-backs' too rocky for stakes
2d Leader. (45 to 60 rods long)
Rim line dropped to pass vessels and be marked.
Heart
butt lead stake
gap stake
butt heart stake
breast heart stake
funnel stake
Pot or Crib
N W Cor. Crib Stake
Tunnel outhaul stake
NE Corner Crib Stake

THE FISHERIES OF THE GREAT LAKES.

Kelley's pound-net, near Carpenter's Point, Lake Erie, for capture of whitefish, herring, &c. Sect. v, vol. 1, p. 758.

White-oak stakes, 30 to 60 feet long, 6 inches to 1 foot diameter: the leader stakes 5 to 6 feet apart. Rim line to leader and heart just at water surface. Rim line to pot about 2 feet above surface. Bottom line to leader and heart fixed with stone sinkers.

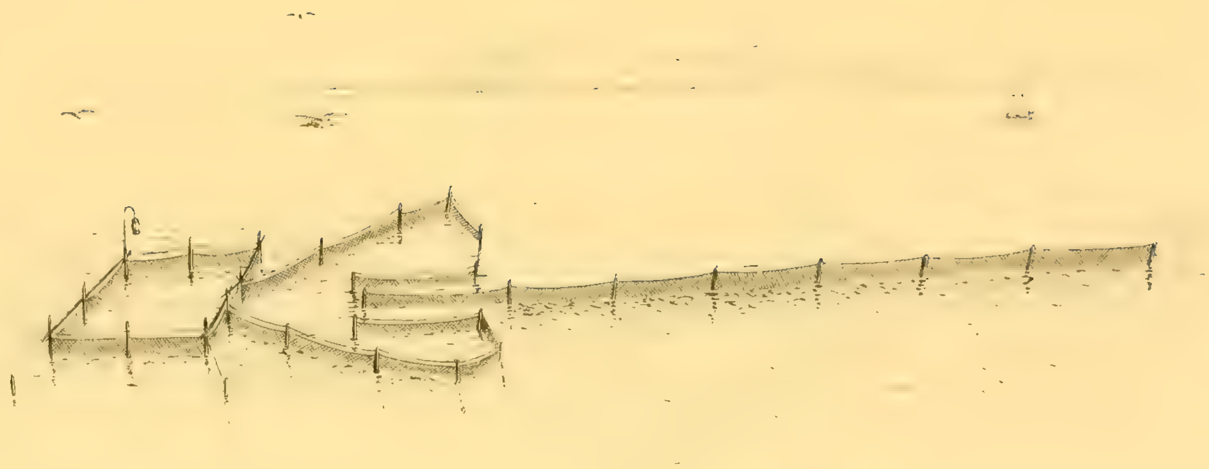
Drawing by H. W. Elliott



THE FISHERIES OF THE GREAT LAKES.

"Lifting the pot" at Kelley's pound-net, Lake Erie. (Sect. v, vol. 1, p. 760.)

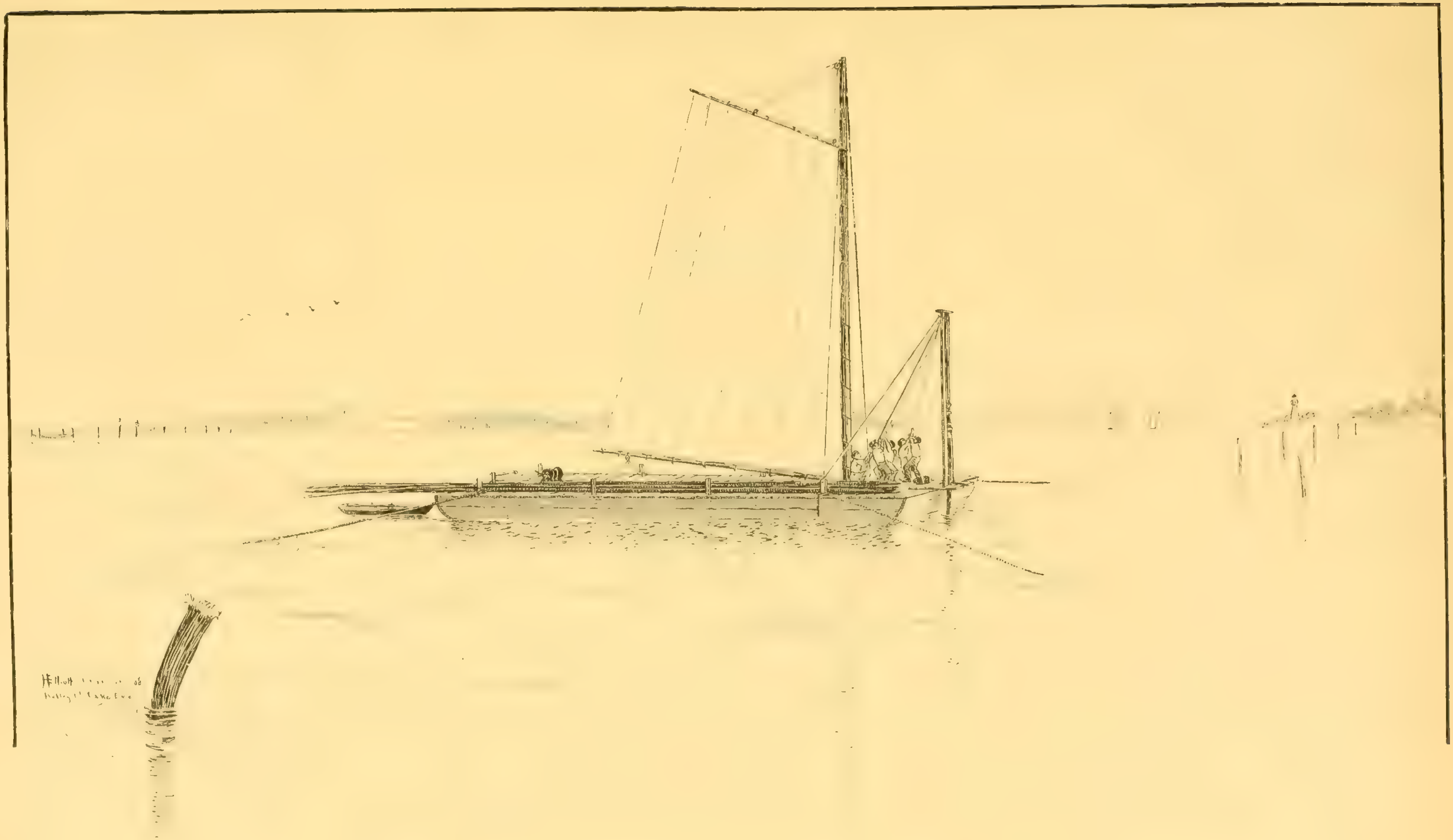
Drawing by H. W. Elliott



THE FISHERIES OF THE GREAT LAKES.

Green Bay pound-net, off Ingleston's fishery. (Sect. v, vol. i, p. 758.)

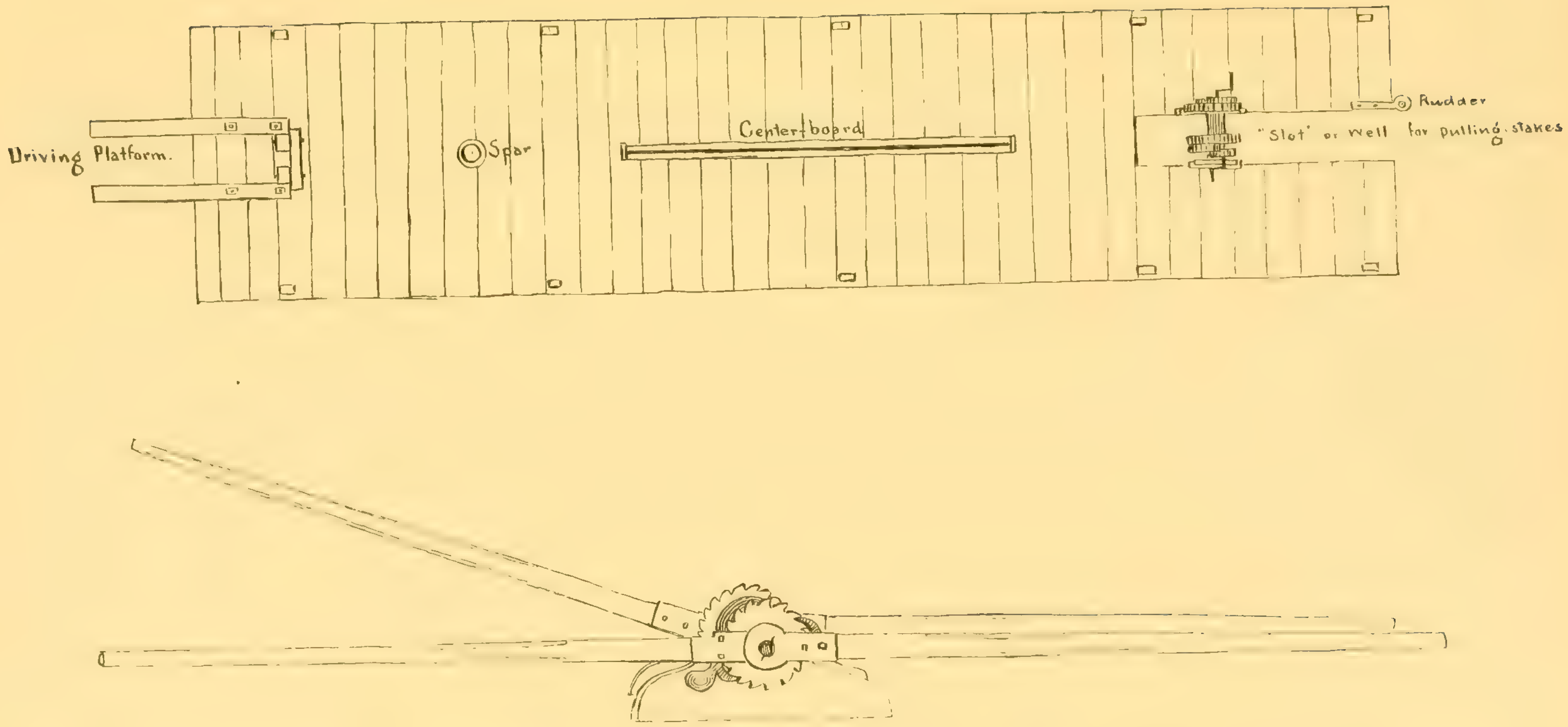
Drawing by L. Kumlien



THE FISHERIES OF THE GREAT LAKES.

"Driving the pound:" Stake-boat and crew off Marblehead, Lake Erie, driving stakes for pound-net. (At close of the season the other end of the same boat pulls the stakes.)
(Sect. v, vol. i, p. 760.)

Drawing by H. W. Elliott.



THE FISHERIES OF THE GREAT LAKES.

Deck plan of stake-boat and stake-puller of Lake Erie. (Sect. v, vol. i, p. 760.)

Drawing by H. W. Elliott.

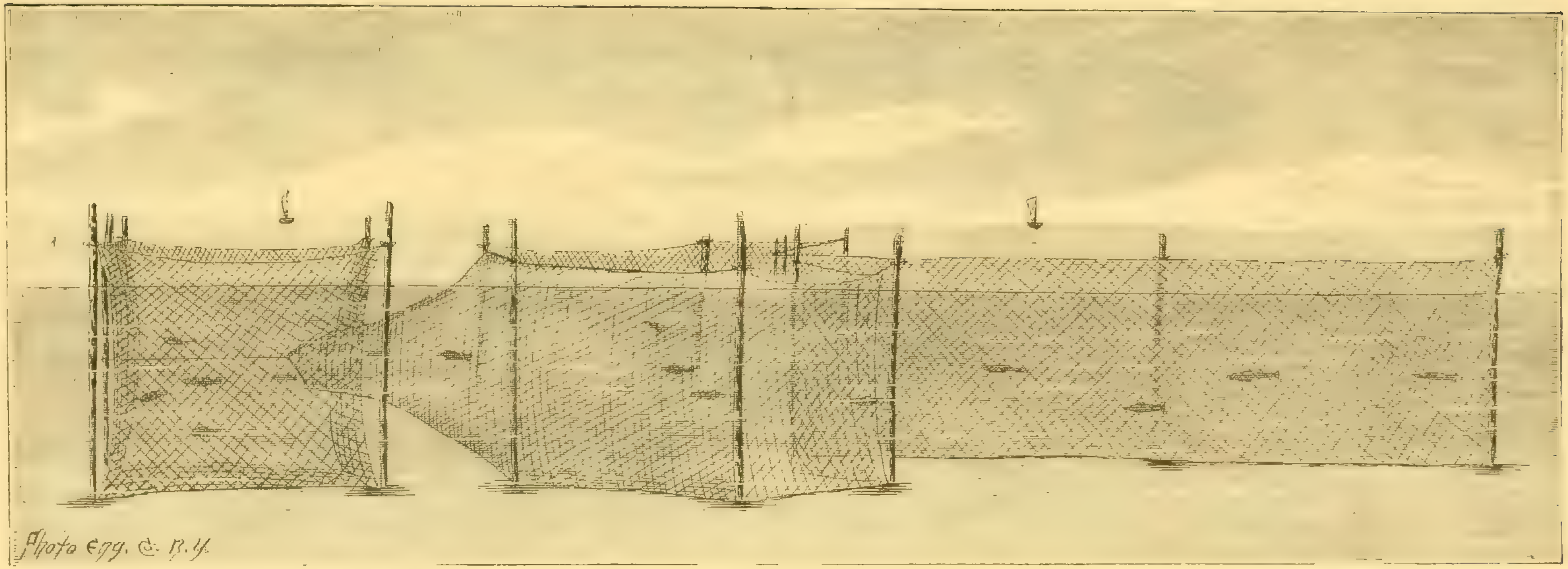
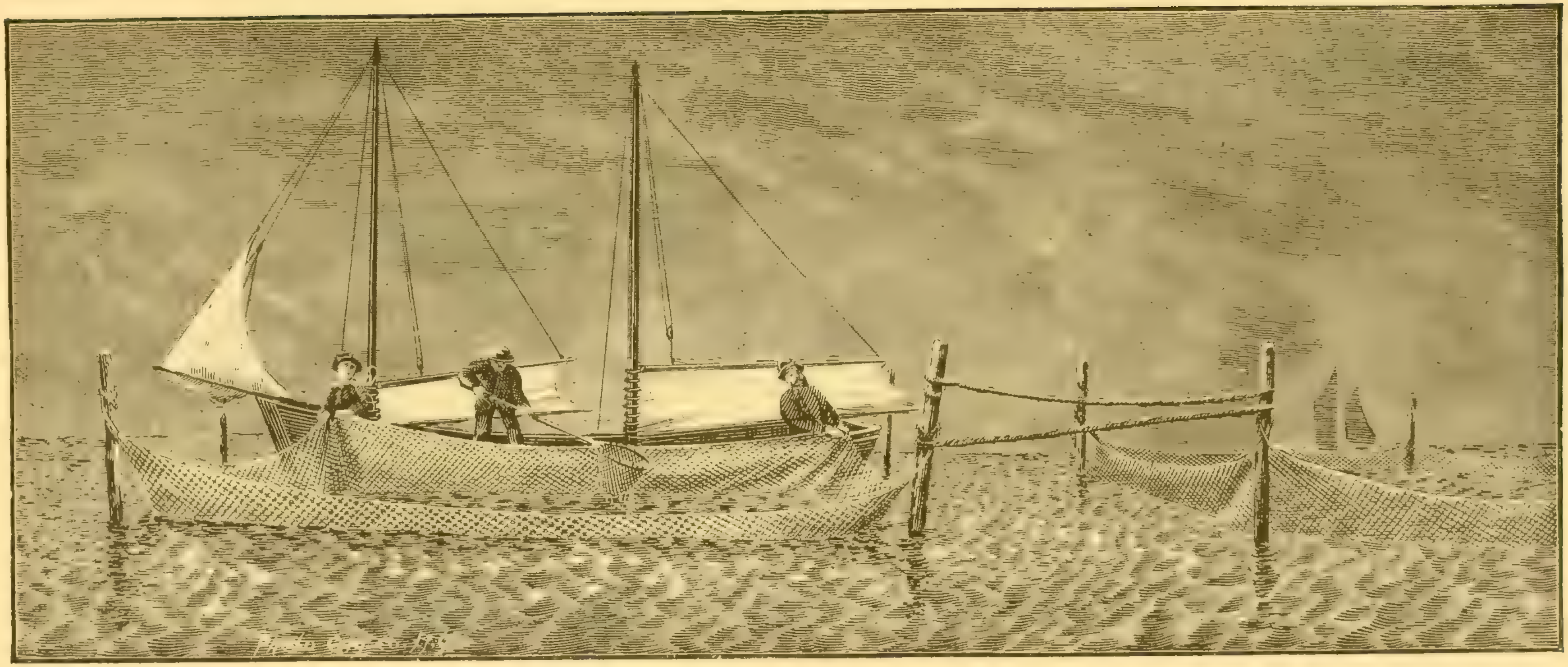


Photo Eng. Co. N.Y.

THE FISHERIES OF THE GREAT LAKES.

Pound-net at Detroit River. (Sect. v, vol. i, p. 758.)

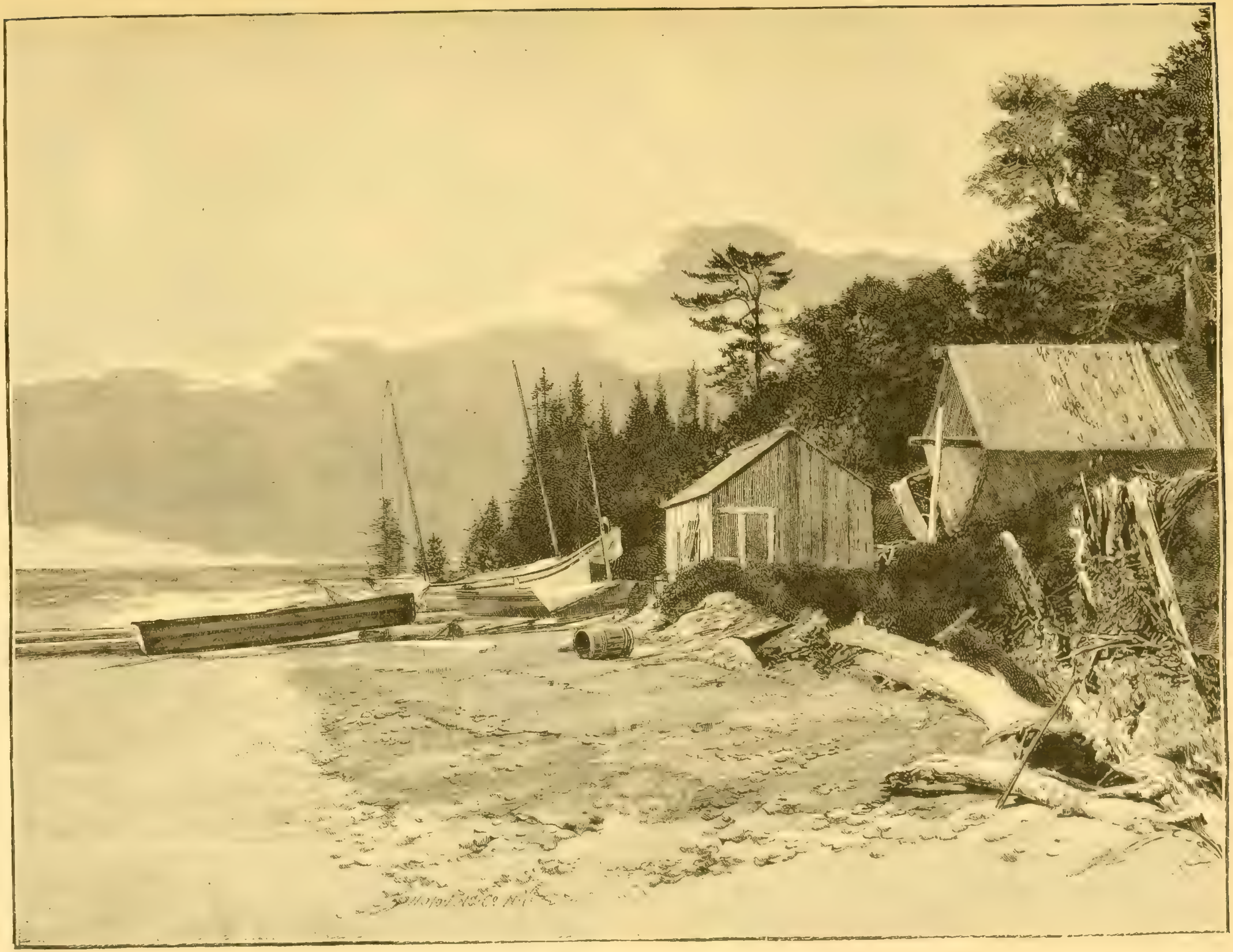
From sketch by L. Kumlien.



THE FISHERIES OF THE GREAT LAKES.

"Bailing out the pot" of pound-net at Detroit River. (Sect. v, vol. i, p. 758.

From sketch by L. Kumlien.



THE FISHERIES OF THE GREAT LAKES.

Camp at South Manitou Island, Lake Michigan: fishing boats; gill-nets on reel; shanty for cleaning fish. (Sect. v, vol. i, p. 762.)

From a photograph by U. S. Geological Survey.

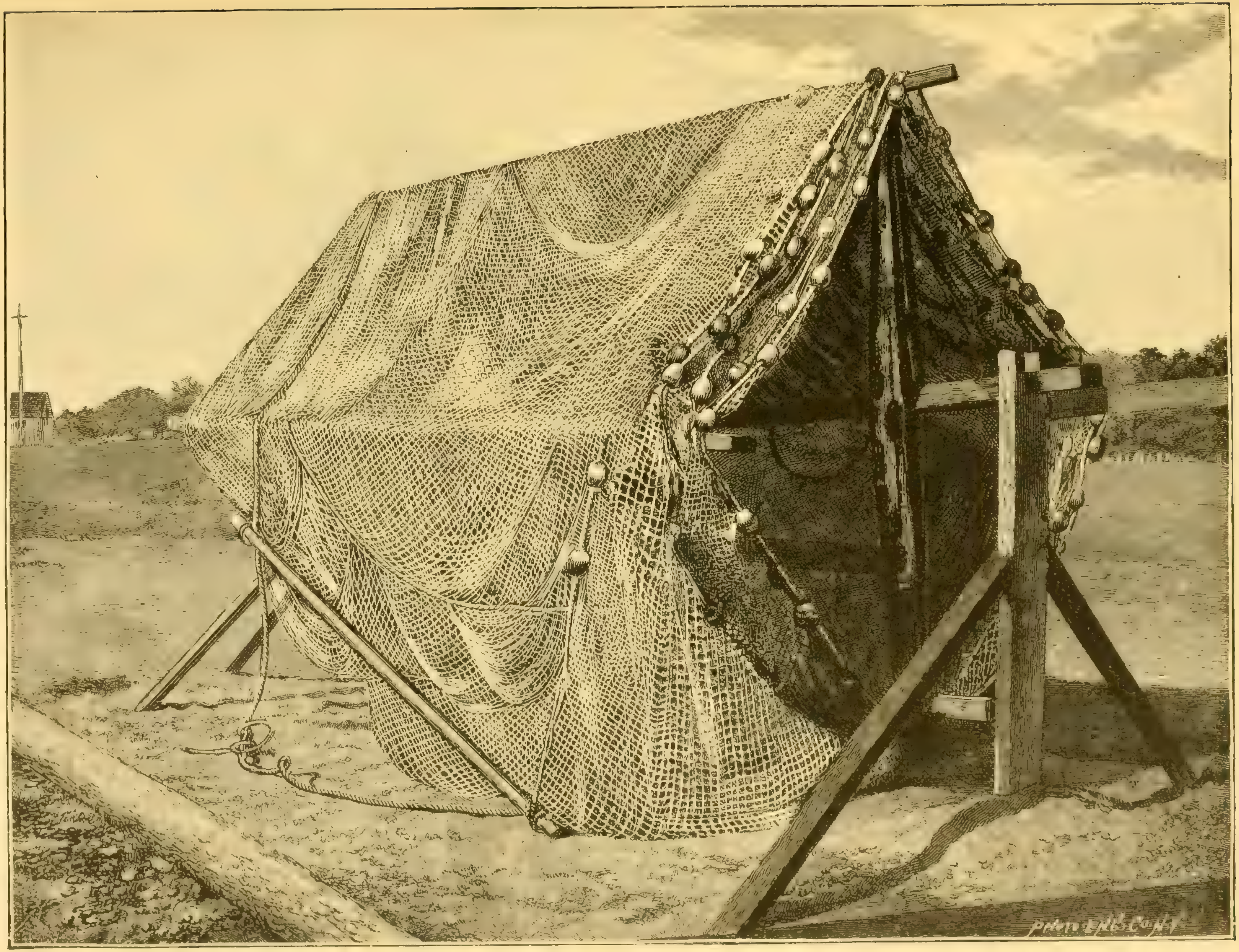
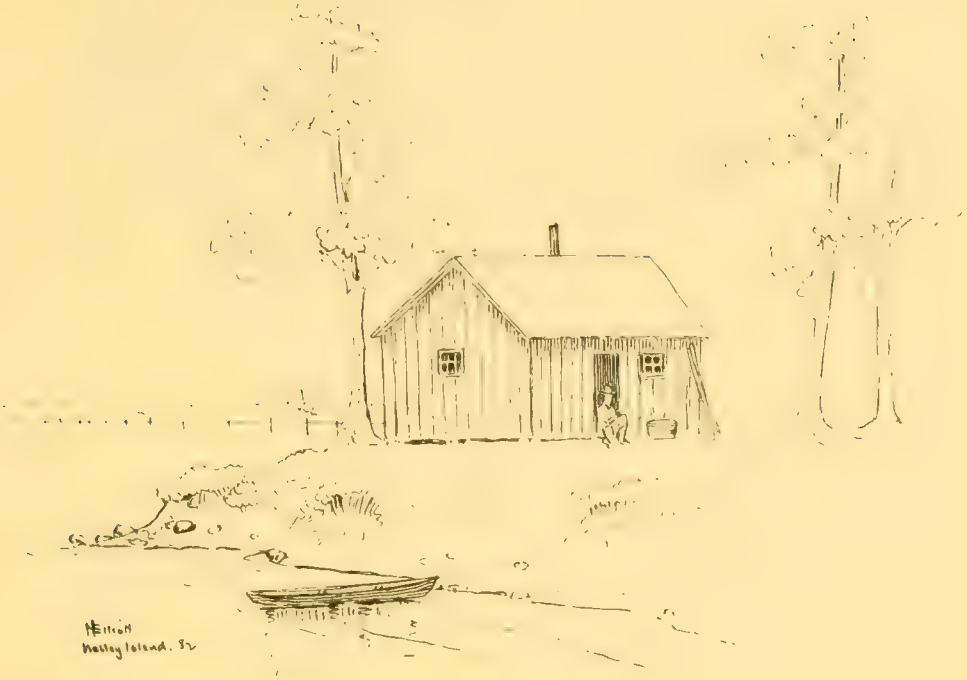


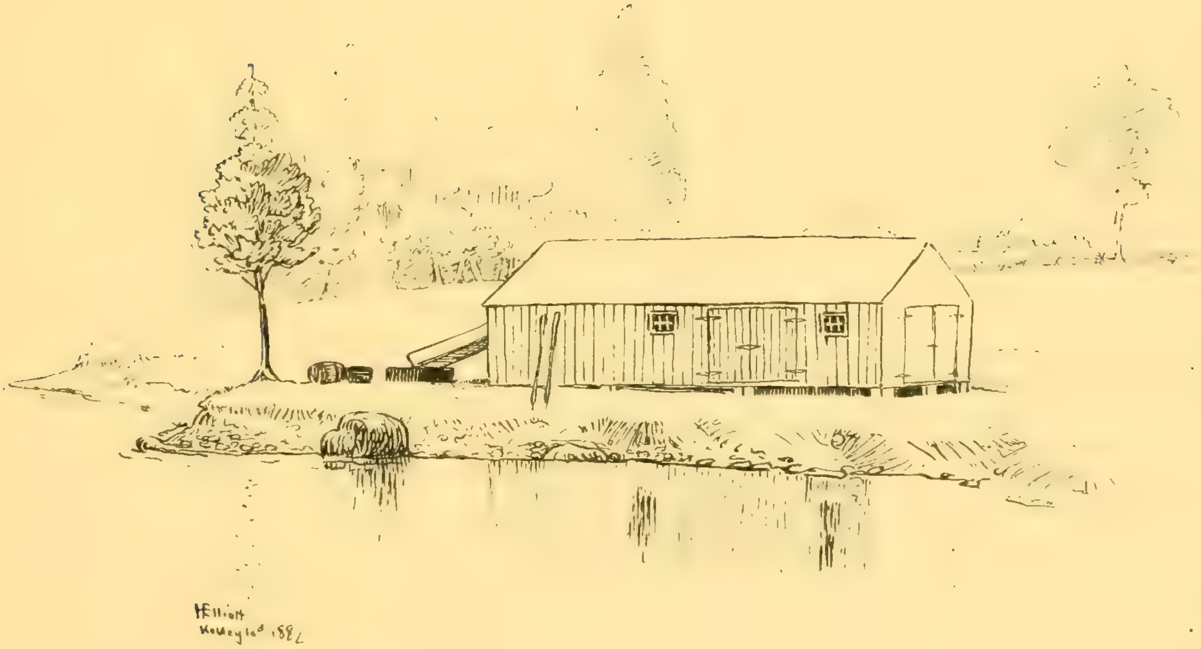
PHOTO-ENG. CO. N.Y.

THE FISHERIES OF THE GREAT LAKES.

Gill-net drying on reel. (Sect. v, vol. i, p. 764.)

From a photograph.





THE FISHERIES OF THE GREAT LAKES.

Type of fishermen's summer house; seine-shed and tarring-box annexed. (Sect. V, vol. I, p. 765.)

Drawings by H. W. Elliott 1882

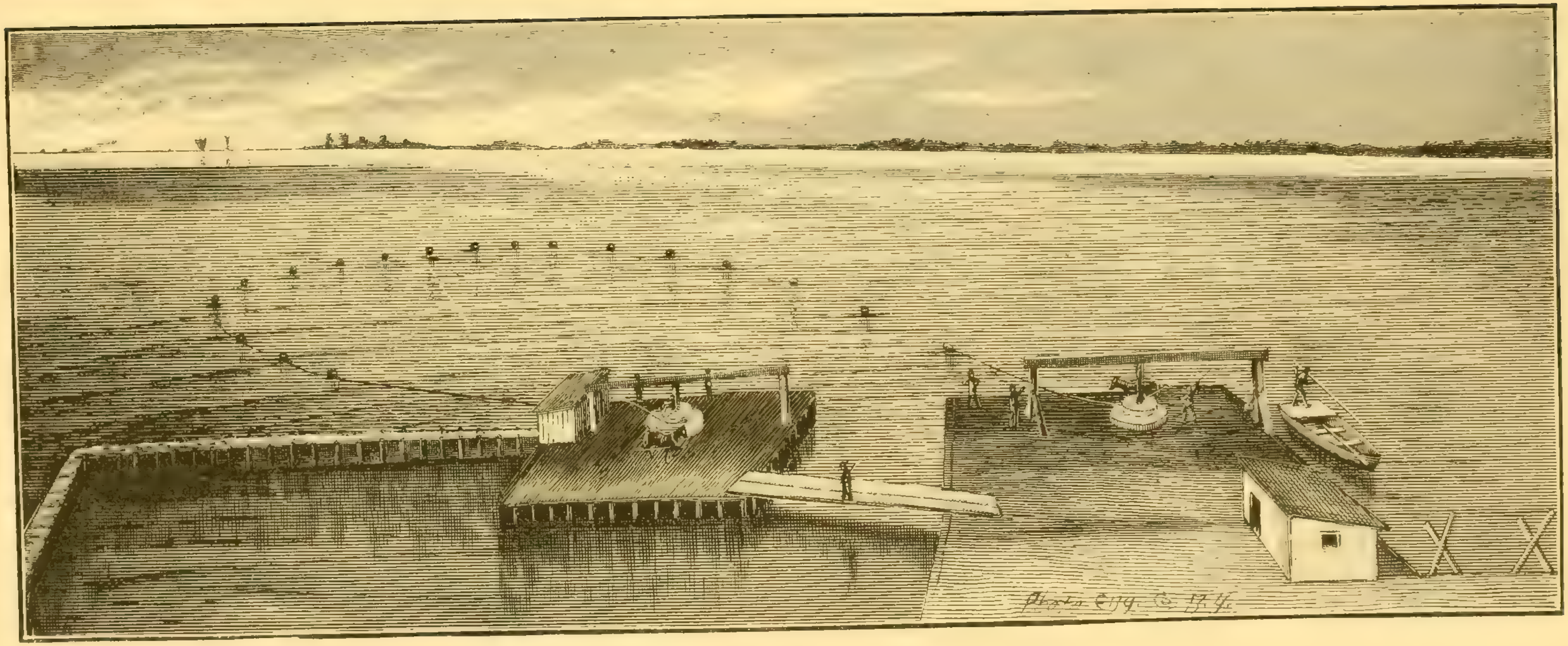


Photo-Eng. Co. N.Y.

THE FISHERIES OF THE GREAT LAKES.

Hauling in herring seine at Herbert's Fishery, Detroit River; inclosure for keeping fish alive. (Sect. v, vol. i, p. 766.)

Sketch by L. Kumlien.

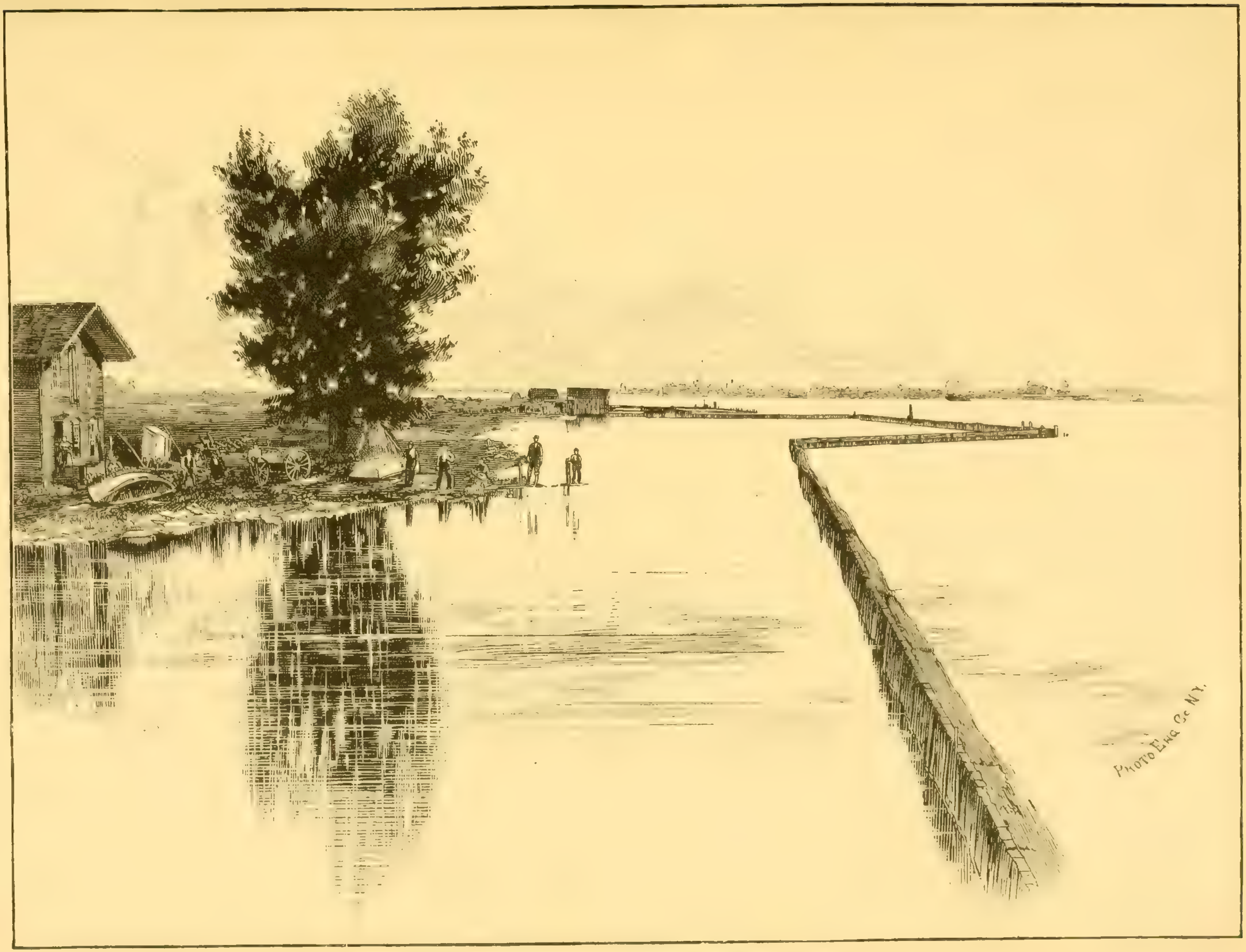


Photo Eng Co N.Y.

THE FISHERIES OF THE GREAT LAKES.

Pond fishery, Detroit River: inclosure for keeping fish. (Sect. v, vol. i, p. 766.)

From a photograph by U. S. Fish Commission

PLATE 182.

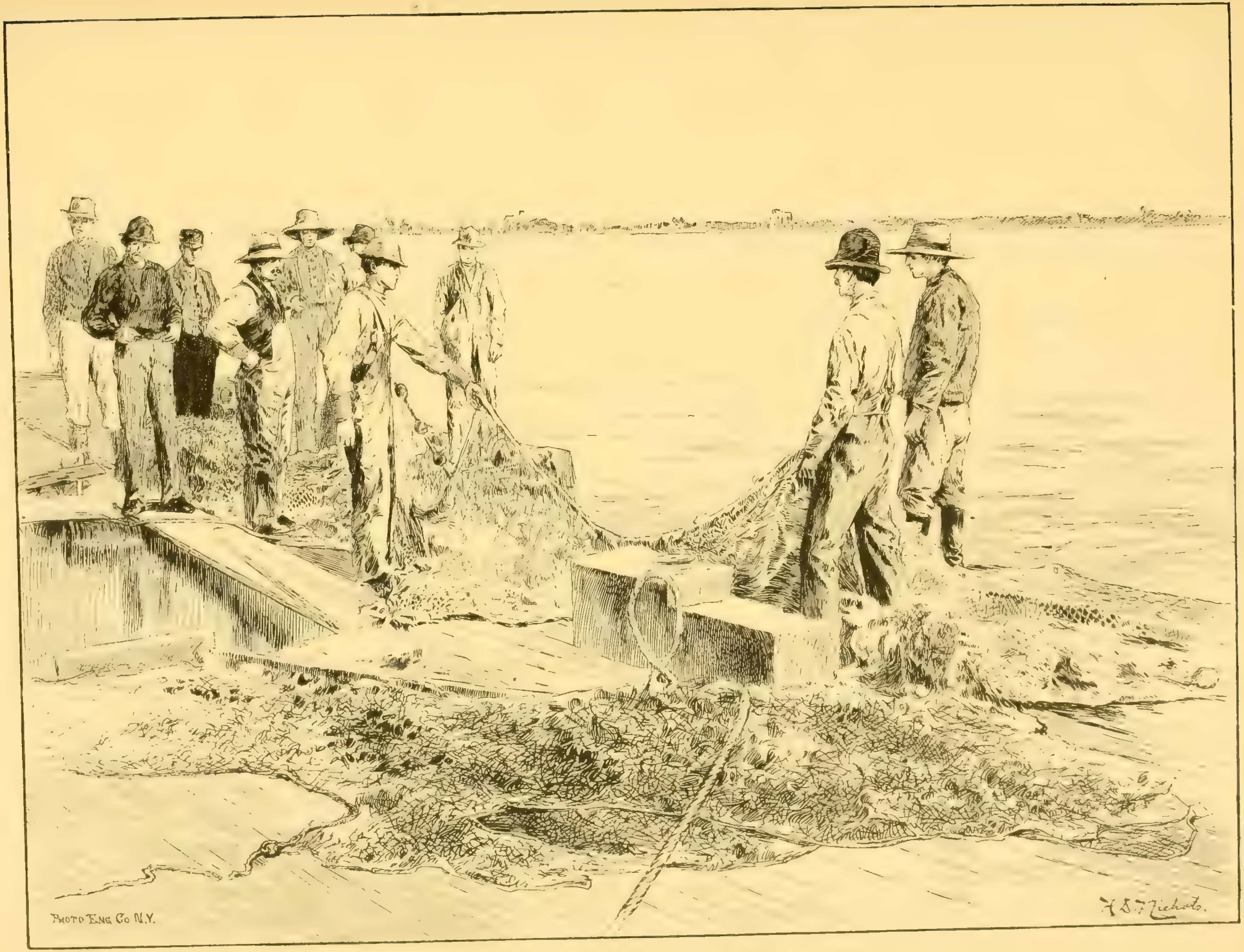
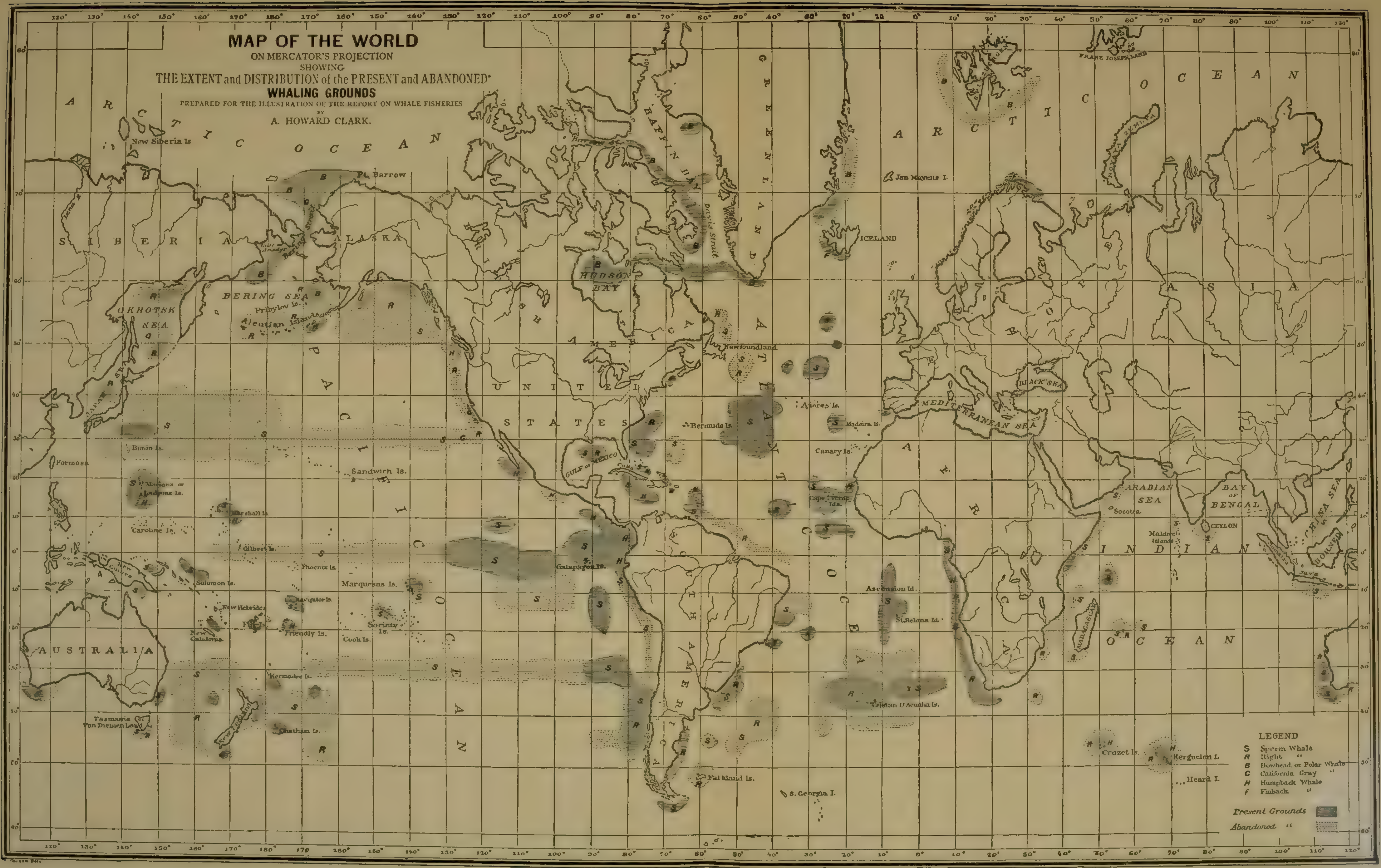


PHOTO ENG CO N.Y.

THE FISHERIES OF THE GREAT LAKES.

Overhauling the seine at Grassy Island fishery, Detroit River. (Sect. v. vol. i. p. 766.)

From a photograph



MAP OF THE WORLD
ON MERCATOR'S PROJECTION
SHOWING
THE EXTENT and DISTRIBUTION of the PRESENT and ABANDONED
WHALING GROUNDS
PREPARED FOR THE ILLUSTRATION OF THE REPORT ON WHALE FISHERIES
BY
A. HOWARD CLARK.

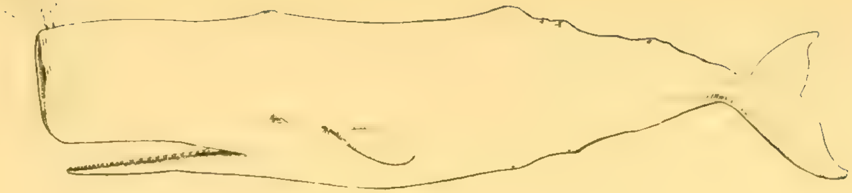


Fig. 1.

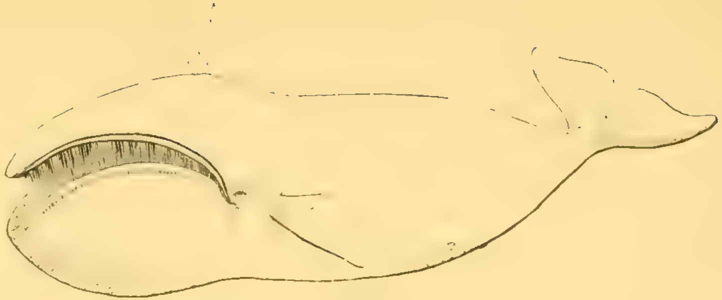


Fig. 5.

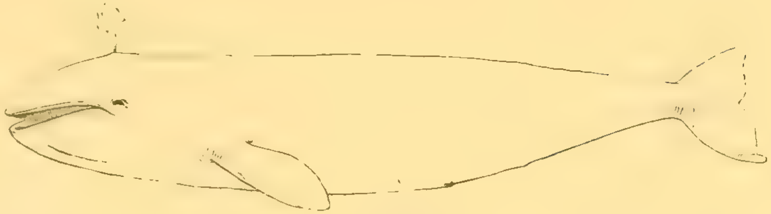


Fig. 2.

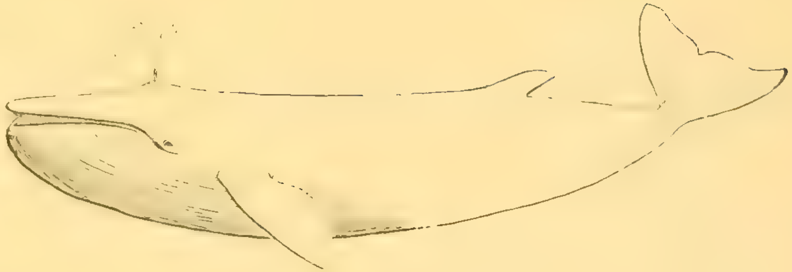


Fig. 6.

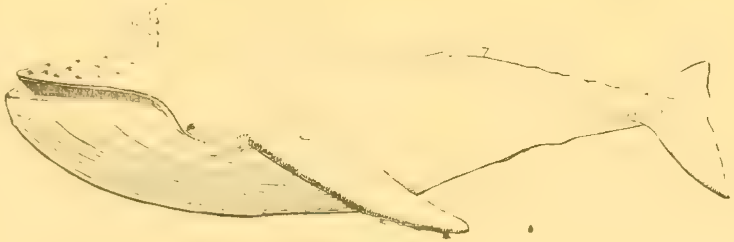


Fig. 3.

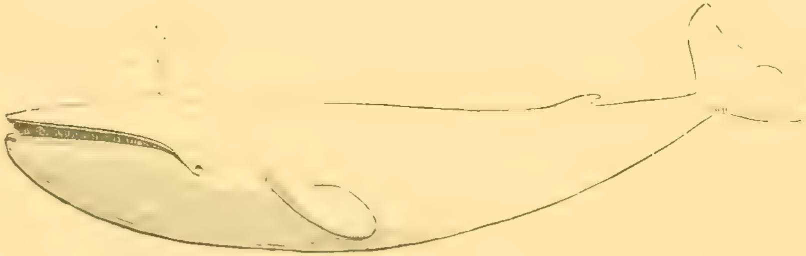


Fig. 4.

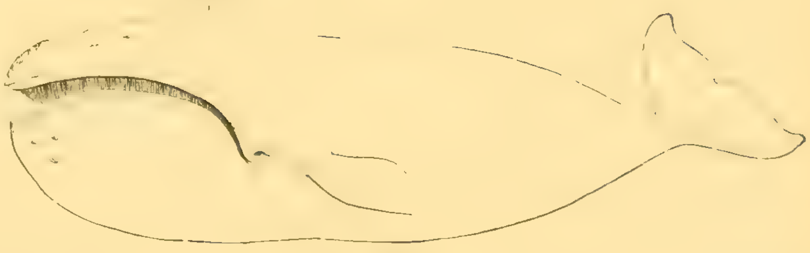
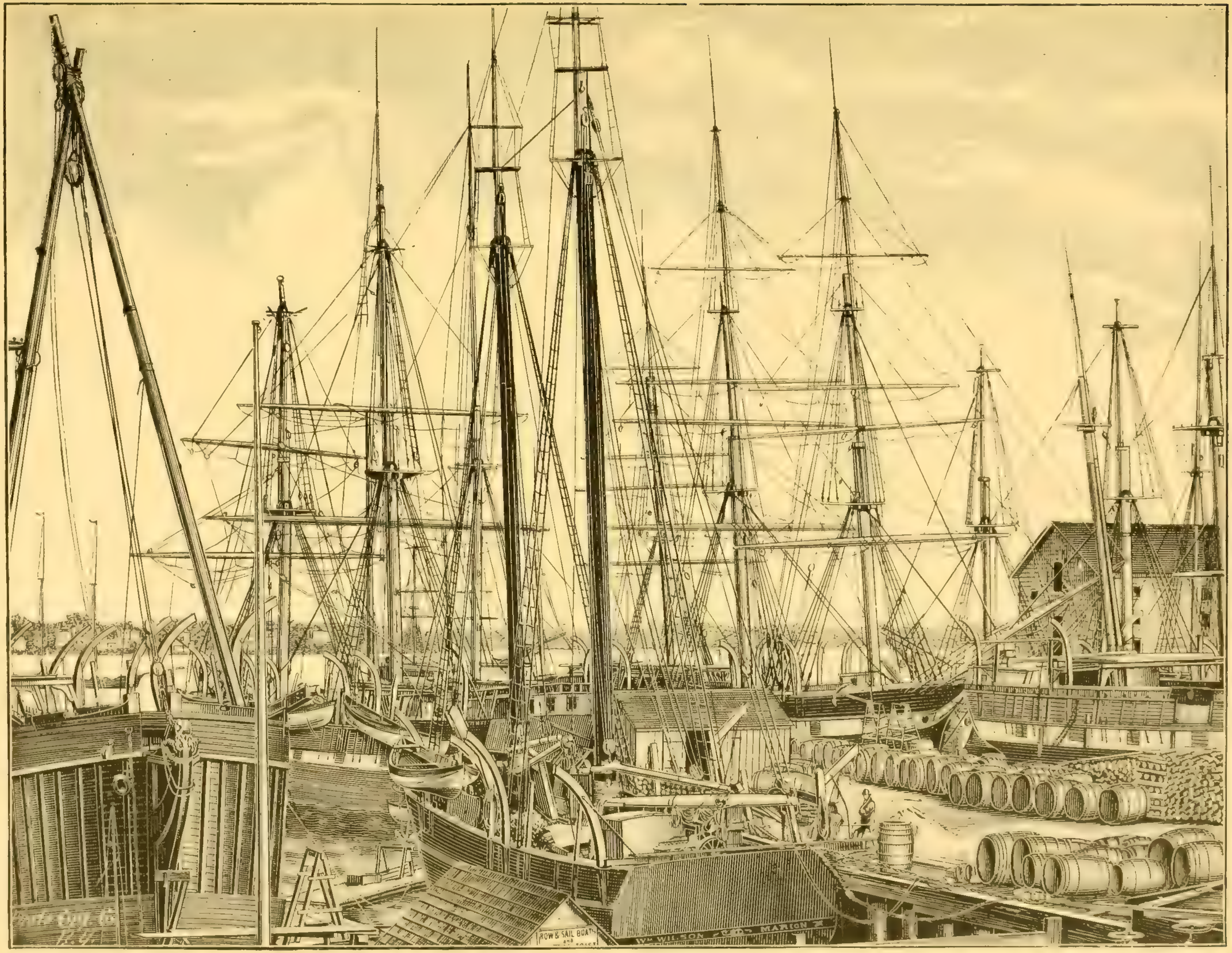


Fig. 7.

THE WHALE FISHERY.

Fig. 1. The Sperm Whale (*Physeter macrocephalus*).
Fig. 2. The California Gray Whale (*Rhachianectes glaucus*).
Fig. 3. The North Pacific Humpback (*Megaptera versabilis*).
Fig. 4. The Sulphur-bottom (*Sibbaldius sulfureus*)
Fig. 5. The Bowhead (*Balæna mysticetus*)
Fig. 6. The Fin-back or Oregon Finner (*Balænoptera velifera*)
Fig. 7. The Pacific Right Whale (*Balæna japonica*)

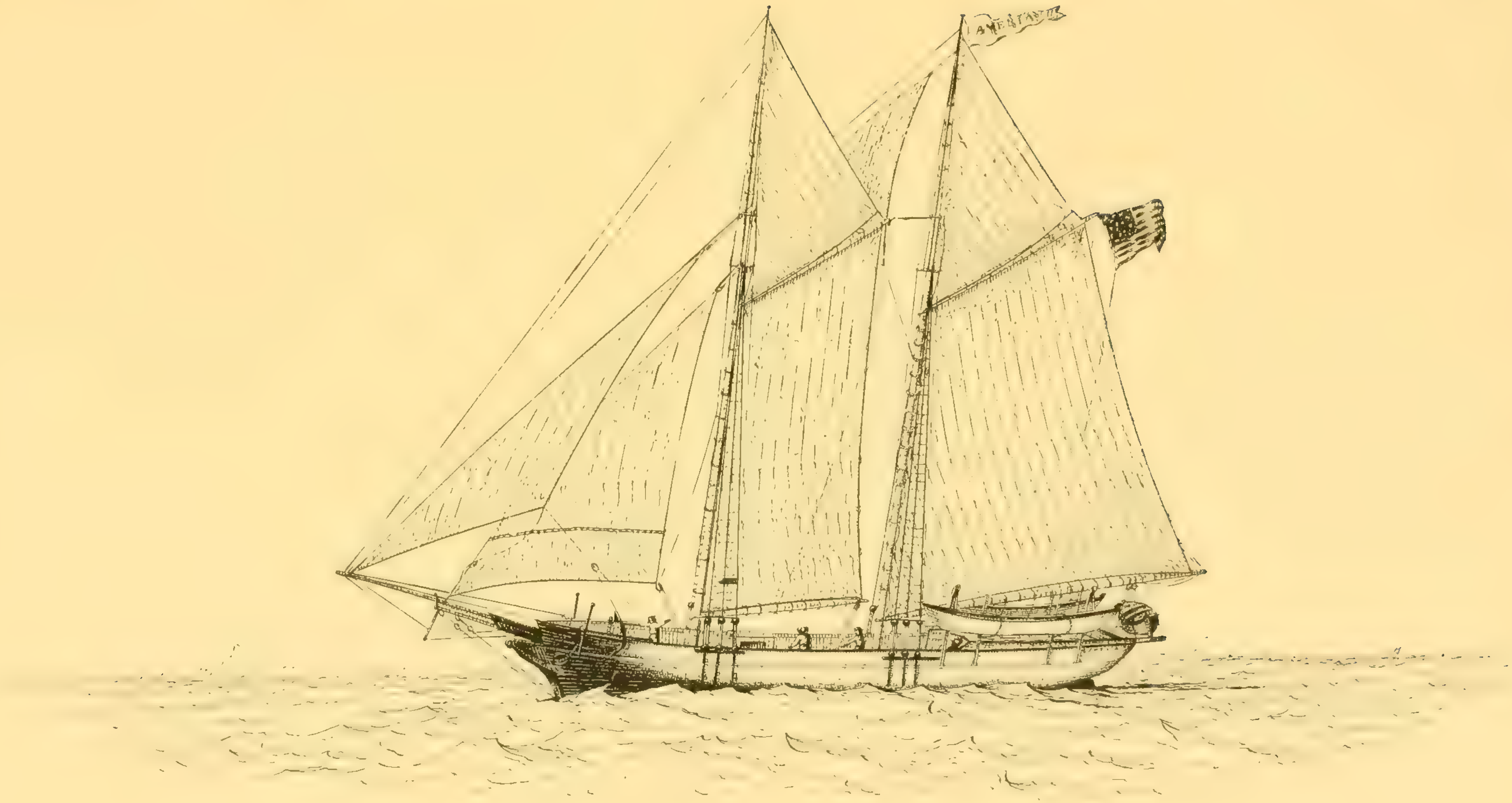
Outlines from Scammon's Marine Mammalia



THE WHALE FISHERY.

Whaling vessels at New Bedford wharves. (Sect. v, vol. ii, p. 232.)

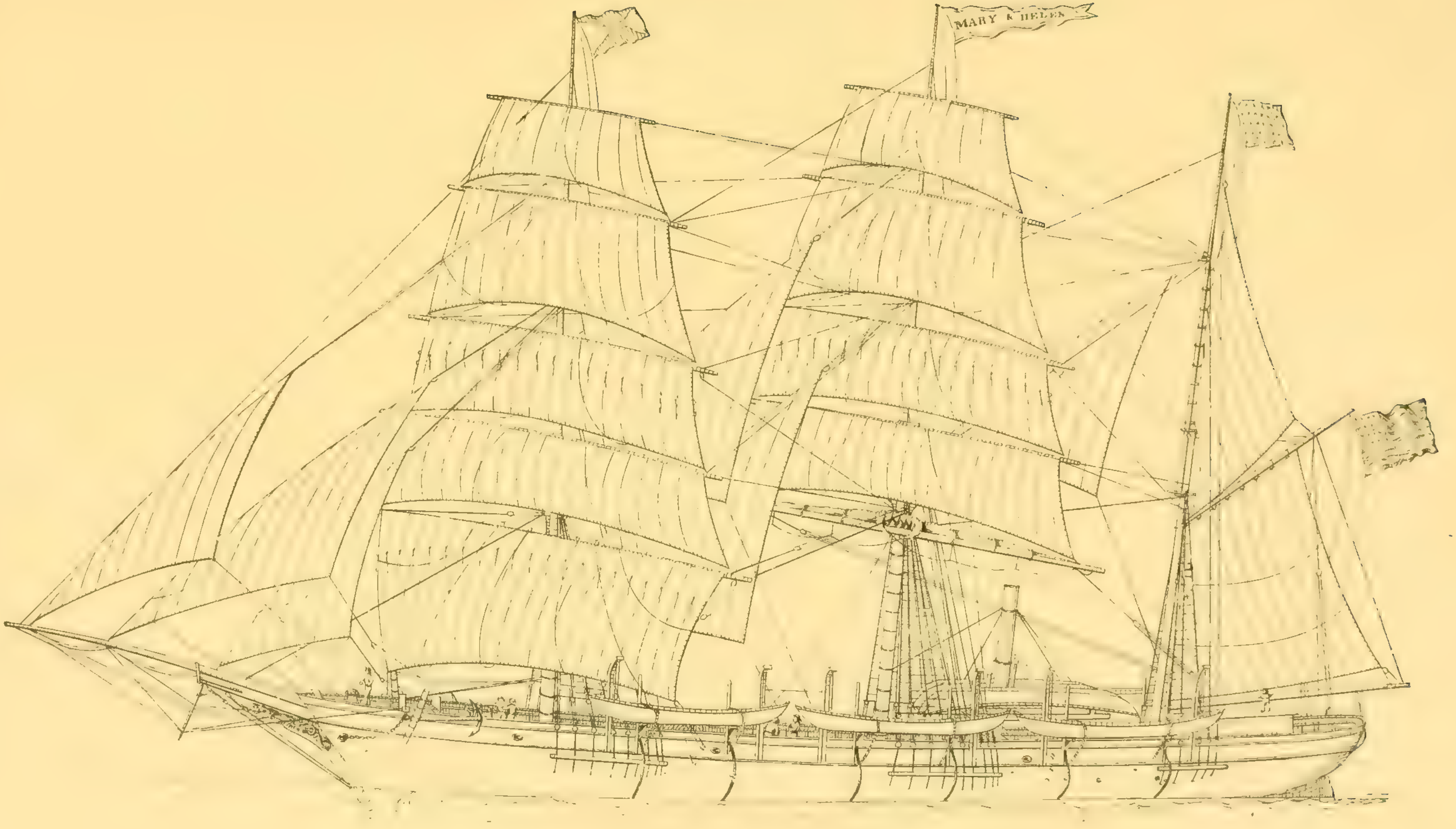
From a photograph by T. W. Smillie.



THE WHALE FISHERY.

Whaling schooner Amelia, of New Bedford, Mass. (Sect. v, vol. ii, p. 232.)

Drawing by C. S. Raleigh.



THE WHALE FISHERY.

Steam whaling bark Mary & Helen, of New Bedford, Mass. (Sect. v, vol. ii, p. 236.)

Drawing by C. S. Raleigh

Plate 188.

DECK PLAN AND SIDE AND INTERIOR PLAN OF WHALING SCHOONER AMELIA, OF NEW BEDFORD, MASS.,

95.44 tons.

FIG. 1. DECK PLAN.—1, Heel of bowsprit. 2, Paul-bitt. 3, Windlass and bitts. 4, Forecastle companion. 5, Fluke-chain bitt. 6, Foremast. 7, Cable boxes. 8, Try-pots. 9, Try-works. 10, Chimneys or try-works pipes. 11, Cooler. 12, Scrap-hopper. 13, Main hatch. 14, Fore-sheet block. 15, Mainmast. 16, Pumps. 17, After hatch. 18, Galley or cook's office. 19, Deck-steps (small ladders leading from the main deck to the cabin deck). 20, Cabin skylight. 21, Cabin companion. 22, Binnacle. 23, Steering wheel. 24, Steering screw box. 25, Fore channels. 26, Main channels. 27, Cutting-in gangway. 28, Whale boats on the cranes. 29, Skids for spare boats. 30, Boat davits. 31, Cat-heads.

FIG. 2. SIDE AND INTERIOR PLAN.—1, Bowsprit. 2, Paul-bitt. 3, Windlass and bitts. 4, Forecastle companion. 5, Foremast. 6, Forecastle. 7, Chain cable box. 8, Try-pots. 9, Try-works. 10, Chimney and flue. 11, Main hatch. 12, Locker for coal. 13, Casks for oil. 14, Ship stores, gear, &c. 15, Captain's store-room. 16, Captain's cabin. 17, Steerage. 18, Mainmast. 19, After hatch. 20, Galley. 21, Cabin skylight. 22, Cabin companion. 23, Side whale boat. 24, Steering screw box. 25, Stern whale boat. 26, Spare spars, oars, &c. 27, Boat davits. 28, Boat bearers. 29, Main hold. 30, Cat-head. 31, Cutting blocks, gear, &c. 32, Pumps. 33, Main channels 34, Fore channels.

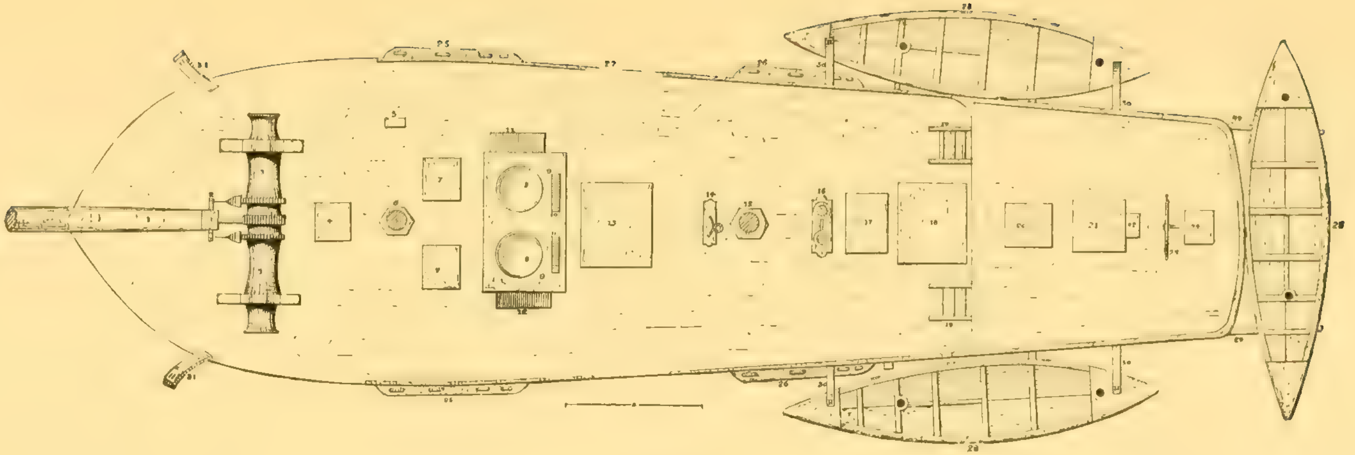


Fig. 1.

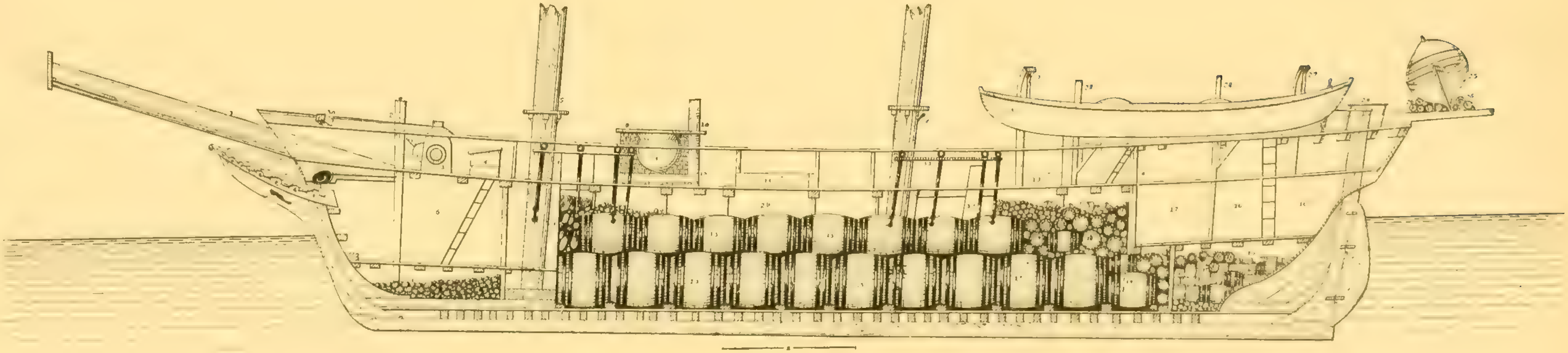


Fig. 2.

THE WHALE FISHERY.

Deck plan and side and interior plan of the whaling schooner Amelia, of New Bedford, Mass. (Sect. v, vol. ii, p. 234.)

Drawing by C. S. Raleigh.

[See explanation opposite.]

Plate 189.

DECK PLAN AND SIDE AND INTERIOR PLAN OF WHALING BARK ALICE KNOWLES OF NEW BEDFORD, MASS.

302.78 TONS.

Fig. 1. Deck plan.—1, Heel of bowsprit. 2, Paul-bitt. 3, Cat-heads. 4, Windlass and bitts. 5, Forecastle companions. 6, Fluke-chain bitt. 7, Foremast. 8, Fore hatch. 9, Try-pots. 10, Try-works. 11, Cooler. 12, Scrap-hopper. 13, Work-bench. 14, Chimney and flue. 15, Main hatch. 16, Mainmast. 17, Pumps. 18, Deck-house. 19, Spare boats. 20, Galley. 21, Mizzen-mast. 22, Cabin skylight. 23, After deck house. 24, Wheel and screw box. 25, Fore channels. 26, Main channels. 27, Cutting-in gangway. 28, 28, 28, 28, Whale boats on cranes for active service. 29, Boat-davits. 30, Mizzen-chains. 31, Bit (for the belly-chain of the whale).

Fig. 2. Side and interior plan.—(Scale one-sixteenth inch to foot.) 1, Bowsprit. 2, Paul-bitt. 3, Cat-head. 4, Windlass and bitts. 5, Figure-head. 6, Forecastle companion. 7, Hawse-chocks. 8, Foremast. 9, Forecastle. 10, Fore hold shooks, gear, &c. 11, Casks for oil (riders). 12, Casks for oil (between decks). 13, Fore 'tween decks. 14, Blubber room. 15, Try-works. 16, Steerage. 17, Chain locker and pumps. 18, After hold (stores, gear, &c.). 19, After peak (captain's stores, &c.). 20, Captain's cabin. 21. Galley. 22, Skids for spare boats. 23, Mainmast. 24, Mizzen-mast. 25, After house. 26, Boat davits. 27, Whale boats. 28, Boat bearers. 29, Main hatch. 30, Fore hatch. 31, Booby hatch. 32, Cabin skylight. 33, Wheel and screw box. 34, Cranes for boats. 35, Lower main hold. 36, After 'tween deck. 37, Fore channels. 38, Main channels. 39, Mizzen channels.

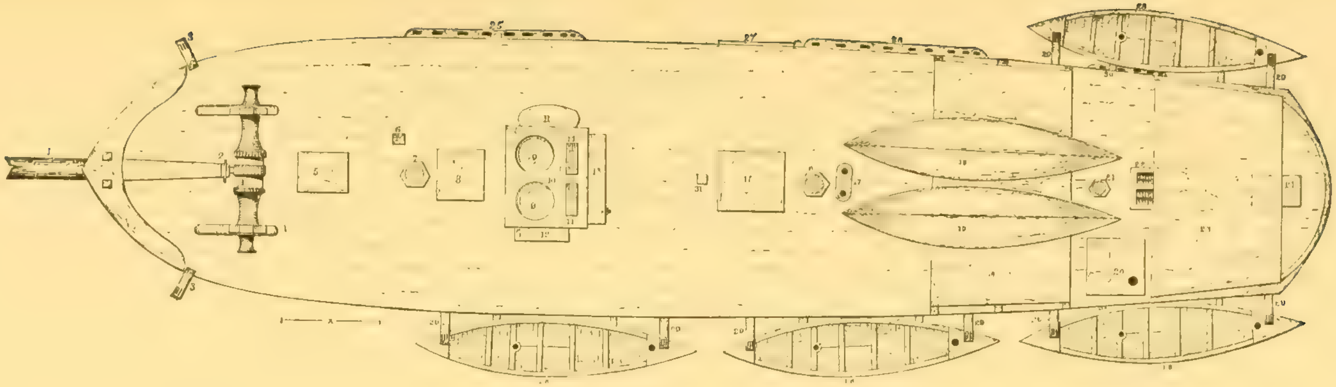


Fig. 1.

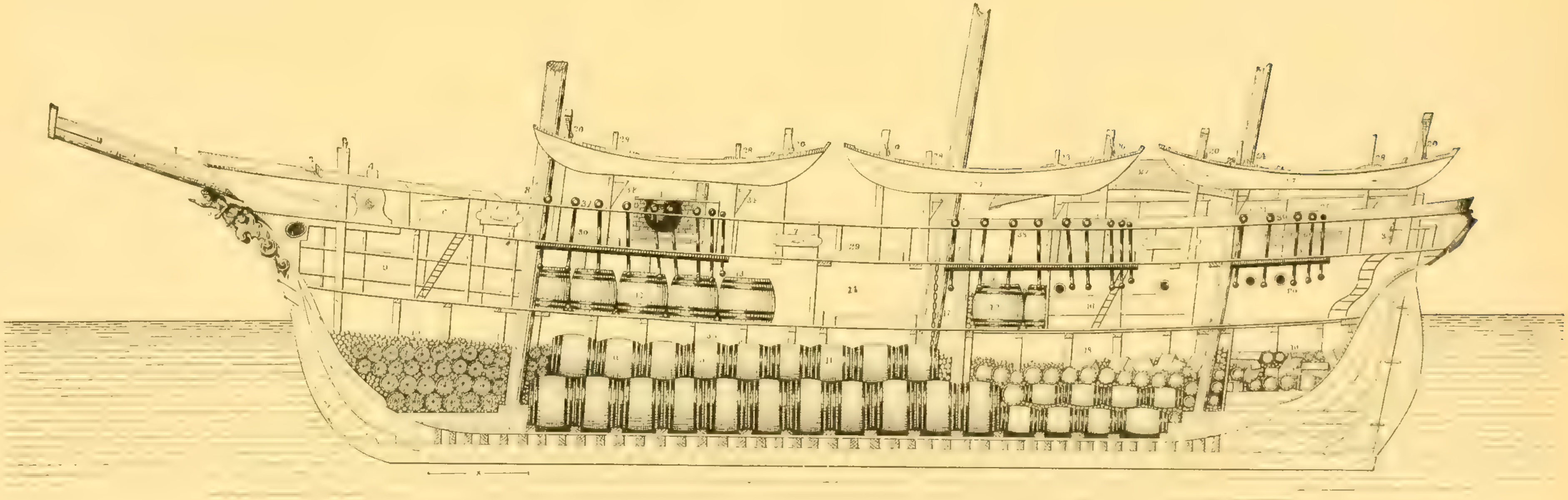


Fig. 2.

THE WHALE FISHERY.

Deck plan and sectional plan of whaling bark Alice Knowles, of New Bedford, Mass. (Sect. v, vol. ii, p. 234.)

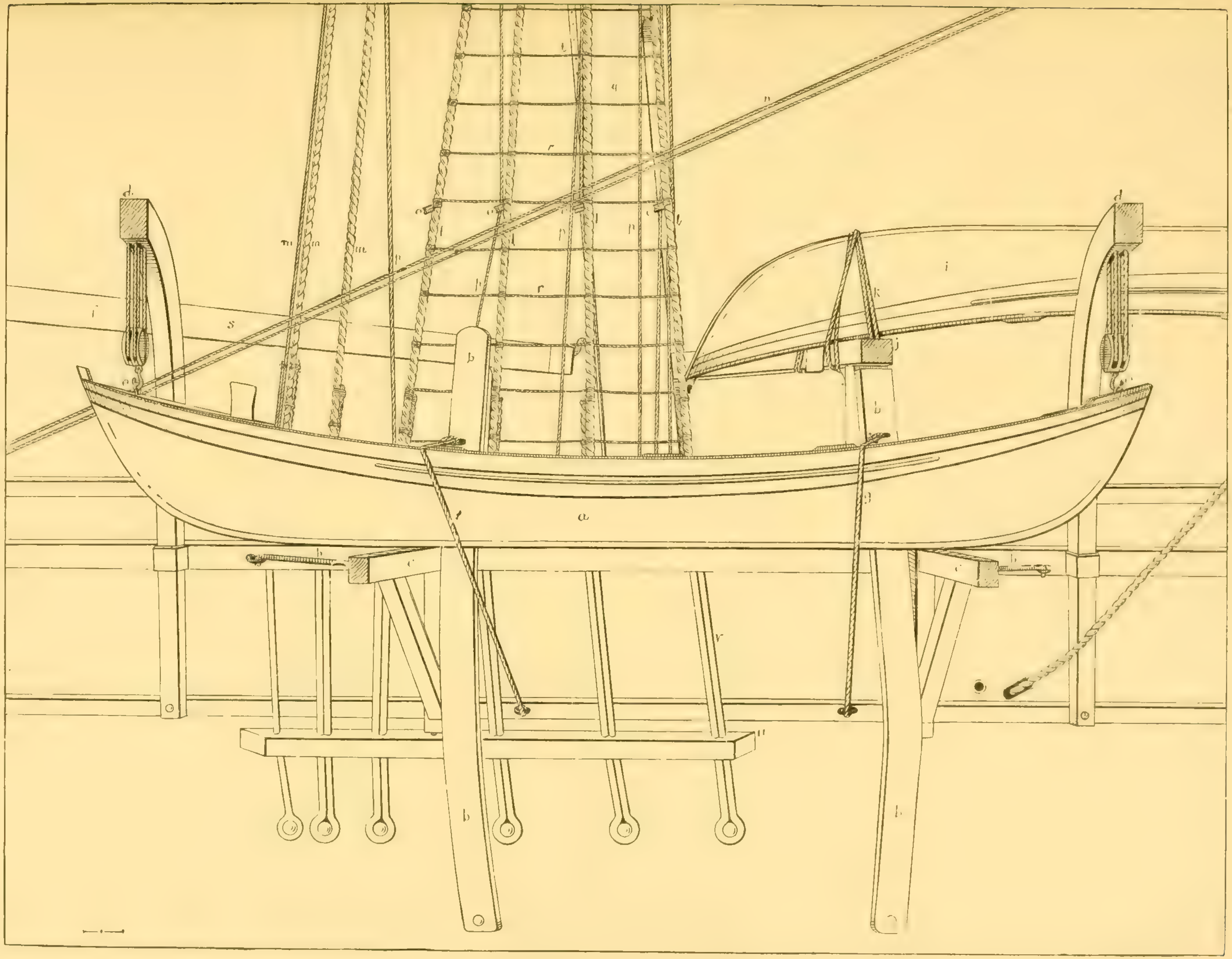
Drawing by C. S. Raleigh

[See explanation opposite.]

Plate 190.

STARBOARD QUARTER OF A WHALE SHIP SHOWING THE MANNER OF TRANSPORTING THE CAPTAIN'S BOAT AND THE SPARE BOATS.

a. Whale-boat on cranes transported to whaling grounds.
b, b, b Bearers against which the inboard side of boat rests.
c, c. Crane upon which keel of boat rests.
d, d. Davits.
e, e. Hoisting straps.
f, f. Davit-tackle falls for hoisting and lowering.
g, g. Gripes for lashing boat to prevent chafing.
h, h. Iron cranes to hold boat in position.
i. Spare boat on skids or gallows' frame.
j. End of skid resting on stanchion.
k. Lashing to hold boat in position.
l, l, l, l. Shrouds.
m, m, m, m. Backstays; topmast, topgallant, and royal backstays.
n. Main brace.
p, p, p, p, p. Running rigging.
q. Mizzen-mast.
r, r. Ratlines.
s. Spanker boom.
t. Spanker jackstay.
u. Channels.
v. Chain plates.



THE WHALE FISHERY.

Manner of transporting whale-boats on the vessels. (Sect. v, vol. ii, pp. 243, 244.)

[See explanation opposite.]

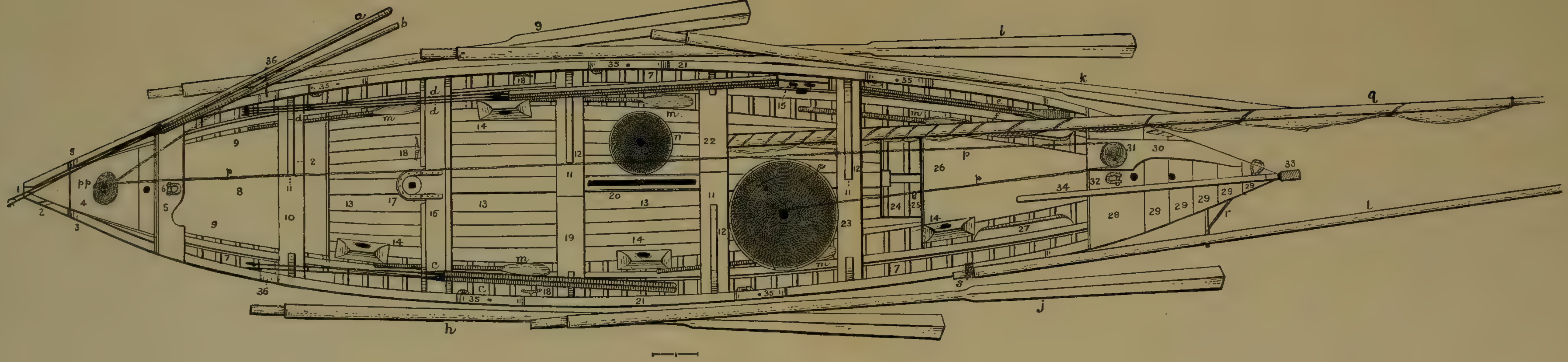
Plate 191.

DECK VIEW OF WHALE BOAT READY FOR THE CHASE.

[Scale ⅔ inch to foot. Parts of boats designated by figures and utensils by letters.]

1, Bow-chocks through which tow-line runs when fast to a whale. 2, Lance straightener: a slot in gunwale for straightening bent irons. 3, 3, Top or false chocks, nailed on gunwhales. 4, Box of boat. 5, Clumsy-cleat or thigh thwart used by boat-steerer to steady himself during the capture. 6, Shackle or iron strap, for hoisting and lowering the boat to and from the ship. 7, 7, 7, Timbers of boat. 8, Platform (forward) upon which boat steerer and officer stand when striking and working a whale. 9, 9, Risings, or top board of ceiling, on which the thwarts are placed and nailed. 10, Harpooner thwart. 11, 11, 11, 11, Knees on all thwarts. 12, 12, 12, 12, Dunnage for all thwarts; the main thwart (19) is dunnage all the way across. 13, 13, 13, Boat ceiling (inside planking); the bottom of boat. 14, 14, 14, 14, Peak cleats; wooden cleats for the reception of the handles of the oars when apeak; used when fast to a whale, when the oarsmen are resting, &c. 15, Peak cleat for tub-oar. 16, Bow-thwart; a seat for the bow oarsman. 17, Mast-hinge and strap, showing mast-hinge block. 18, 18, 18, Sail-cleats. 19, Mid-ship thwart for mid-ship oarsman. 20, Center-board, box and well. 21, Gunwales. 22, Tub-thwart for tub oarsman. 23, After thwart. 24, Well for bailing boat. 25, Plug for letting water out of boat when on the cranes. 26, Platform (aft) on which officer and boat-steerer stand when steering boat. 27, Standing cleats upon which officer stands when going on to a whale in order to get a *longer view*. 28, Cuddy board. 29, 29, 29, 29, 29, Cuddy-boards; cedar boards filling up the stern of boat from the cuddy-board aft to stern-post. 30, Logger head strip, or *lion's tongue*. 31, Logger-head; an upright post with enlarged head, around the neck of which runs the tow-line when fast to a whale and by which the line is managed. 32, Boat-iron, or shackle, same as 6. 33, Rudder. 34, Tiller. 35, 35, 35, High and low rowlocks (wooden), with holes for the reception of shanks of rowlocks. 36, 36, Bow-cleats; nailed to gunwales, and used in *bowing on a whale*, and also as safeguard in case the tow-line should jump from bow-chocks and preventing it from sweeping the boat aft.

A, First iron, shank resting in bow-chocks and handle in boat-crotch. *B*, Second iron, placed in same position as first iron; the handle of first iron, which is the first instrument used, is placed in the top crotch; the handle of second iron is placed in the lower crotch; the extreme end of tow-line is bent in the eye of the first iron strap; these two irons are known as the live irons or live harpoons. *C*, *C*, Spare irons on port side of boat above thwarts (the two other spare irons, one on either side of boat under thwarts cannot be shown in this plan). *D*, *D*, *D*, Three lances (thrust by hand) on starboard side of boat, used in killing the whale. *E*, Boat spade on starboard side aft. *G*, Harpooner oar. *H*, Bow-oar. *I*, Mid-ship oar. *J*, Tub oar. *K*, Stroke-oar. *L*, Steering-oar, manipulated by officer of boat when going on to a whale. *M*, *M*, *M*, *M*, *M*, Paddles. *N*, Small tub with tow-line coiled down, containing 75 fathoms of line. *O*, Large tub with tow line coiled down, containing 225 fathoms of line. *P*, *P*, *P*, Tow-line extending aft from large tub around loggerhead and forward across the thwarts to box of boat (4), where it is coiled and known as box-warp (*PP*); thence extending to and bent in eye-splice of first iron strap. *Q*, *Q*, Mast and sail. *R*, Steering-oar brace. *S*, Lashing or strap for handle of steering-oar when not in use or fast to a whale.



THE WHALE FISHERY.

Deck view of whale-boat ready for the chase; scale, ⅜ inch to foot. (Sect. v, vol. ii, pp. 241, 258.)

Drawing by C. S. Raleigh.

[For description, see opposite page.]

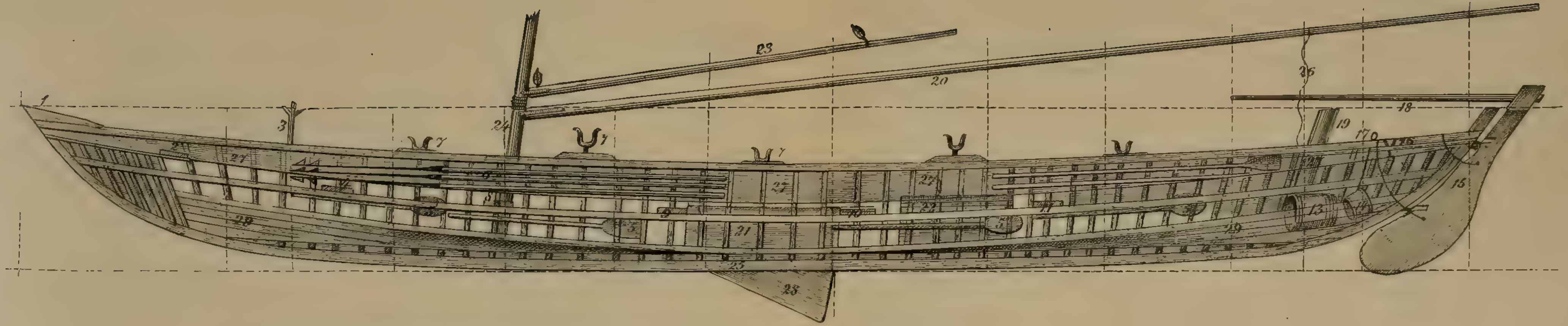
Plate 192.

SIDE AND INTERIOR PLAN OF WHALE-BOAT,

Length, 30 feet.

1, Bow, chock, and roller. 2, Clumsy cleat, and hoisting eyebolt. 3, Crotch for bow harpoon irons. 4. Harpooner thwart. 5, Paddles. 6, Harpoon irons, lances on opposite side. 7, Rowlocks for oars. 8, Bow thwart. 9, Midship thwart. 10, Tub thwart. 11. After thawrt. 12, Boat spades and waifs (*i. e.*, small flags to locate dead whale). 13, Lantern keg. 14, Piggin (for bailing boat, &c.). 15. Rudder. 16, Rowlock for steering, oar. 17. Hoisting eyebolt. 18, Tiller. 19, Loggerhead. 20, Boom for sail 21, Center case (small tub for 75 fathom-line other side). 22, Large tub for whale line, 225 fathoms. 23, Gaff for sail. 24, Mast for sail. 25, Keel and floor timbers. 26, Main sheet. 27, Gunwale streak plank, 9 inches in widest part, generally colored blue in new boats. Timbers of boat of this size, about 6 inches apart (generally). 28, Center-board partly down. 29, Boat's ceiling.

NOTE.—*Oars* omitted on this draft, full length being given on front and interior plan.



THE WHALE FISHERY.

Side and interior plan of whale-boat. (Sect. v, vol. ii, pp. 241, 258.)

Drawing by C. S. Raleigh.

[For description, see opposite page.]

Plate 193.

ARTICLES OF WHALE-BOAT GEAR.

FIG. 1, Lantern keg containing matches, bread, tobacco, &c.
FIG. 2, Compass.
FIG. 3, Keg for fresh water.
FIG. 4, Piggin for bailing.
FIG. 5, Waif for signaling.
FIG. 6, Tub-oar crotch, ships through cleat in gunwale, to clear oar from the line when fast to whale.
FIG. 7, Double oar-lock used when propelling the boat and for same as tub-oar crotch.
FIG. 8, Large line in line-tub.
FIG. 9, Knife for cutting line when foul.
FIG. 10, Rowlock.
FIG. 11, Hatchet for cutting line, cutting poles out of whales, &c.
FIG. 12, Grapnel for catching line.
FIG. 13, Drag, or drug, for bending on drug-iron to retard movements of whales.
FIG. 14, Canvas nipper to protect hands when handling line.

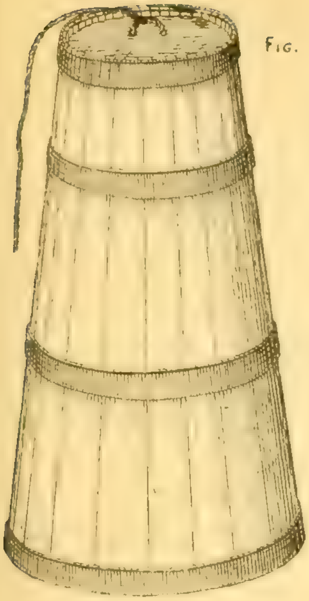
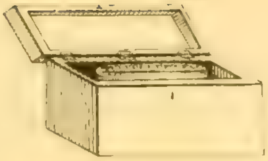


Fig. 1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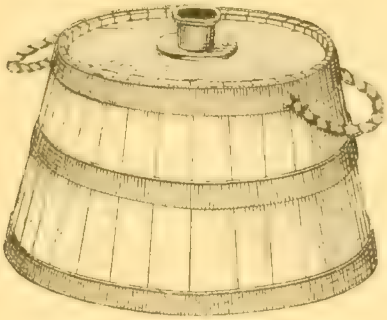
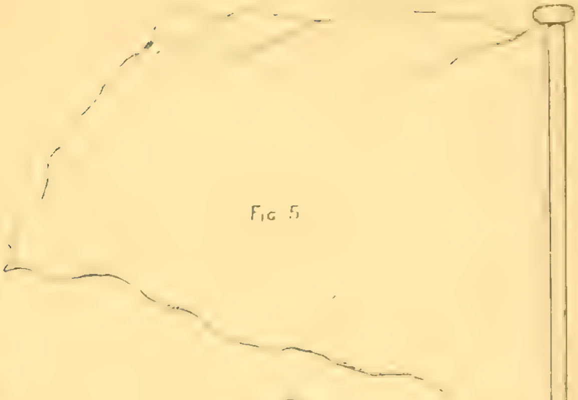


Fig. 3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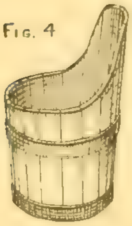
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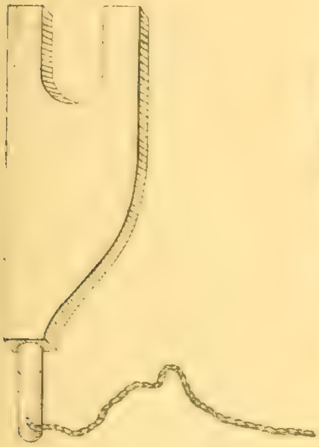
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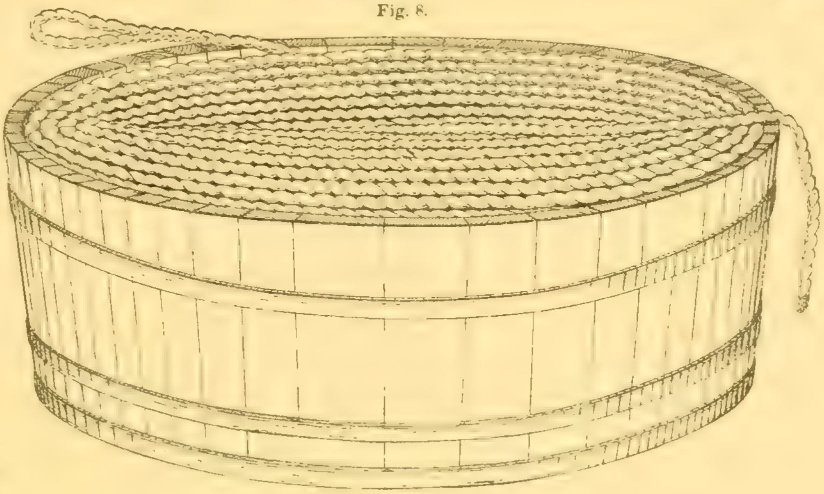
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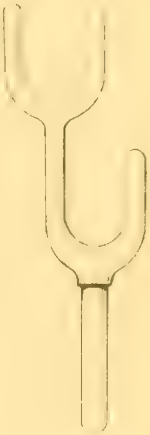
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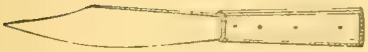


Fig. 9

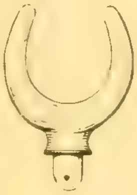
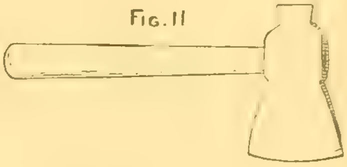


Fig. 10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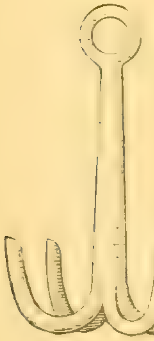


Fig 12

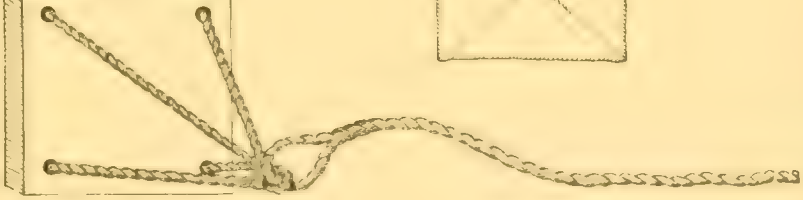


Fig. 13

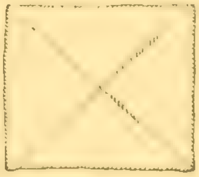
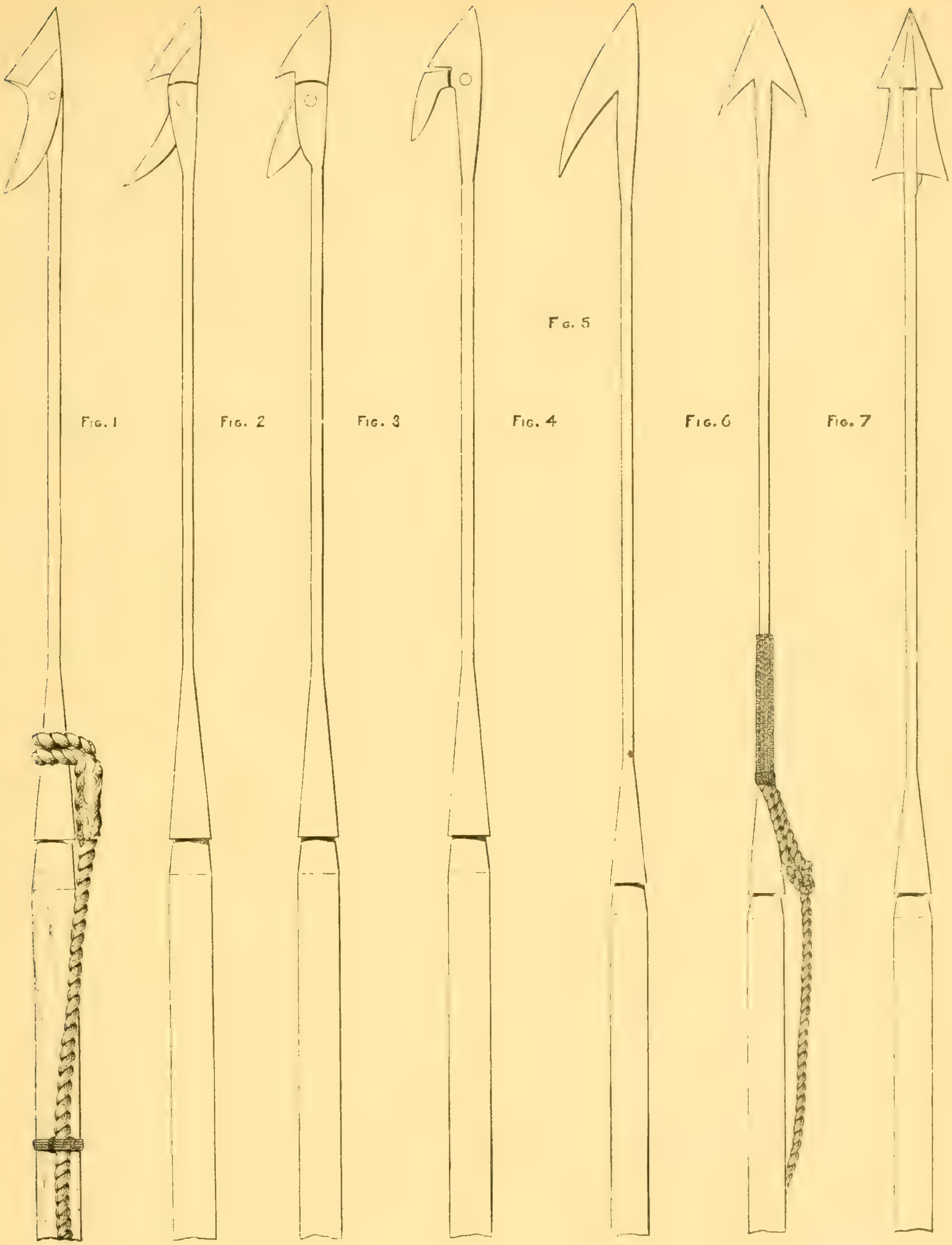


Fig. 14

THE WHALE FISHERY.

Articles of whale-boat gear. (Sect. v, vol. ii, pp. 240, 252.)

[See explanation on opposite page.]



THE WHALE FISHERY.

Harpoons. (Sect. v, vol. ii, p. 250.)

FIG. 1. Improved harpoon or toggle-iron now in general use.
FIGS. 2, 3. First forms of toggle-irons made by Lewis Temple.
FIG. 4. "One-flued" harpoon with hinged toggle.
FIG. 5. "One-flued" harpoon.
FIG. 6. "Two-flued" harpoon.
FIG. 7. Provincetown toggle-iron; not now in use.

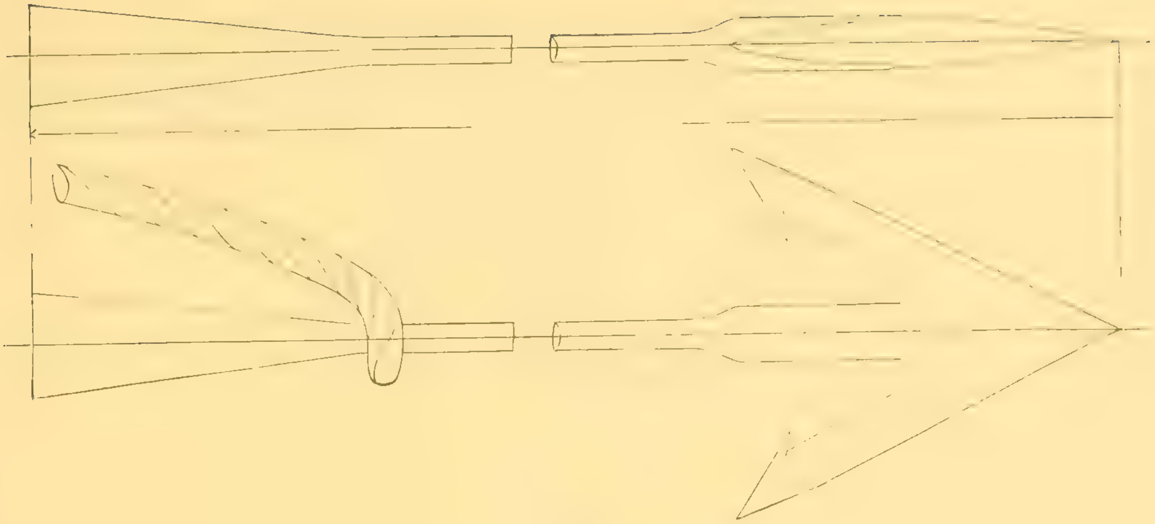
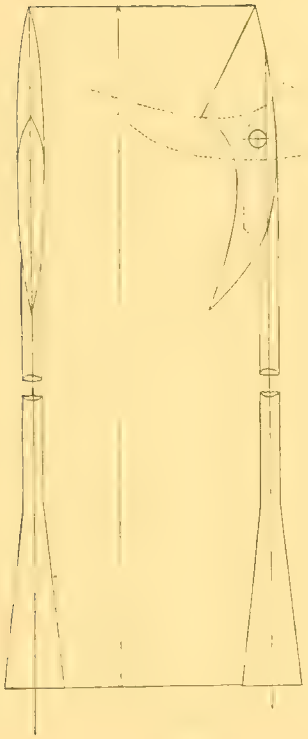


Fig. 1.



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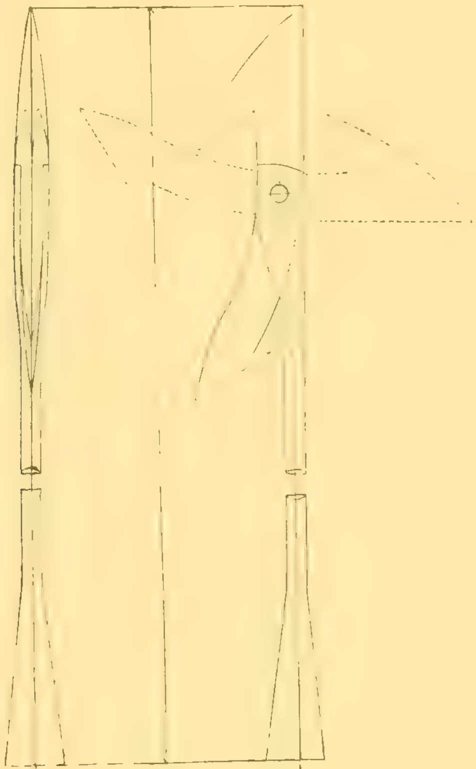


Fig. 3.

THE WHALE FISHERY.

English harpoons. (Sect. v, vol. ii, p. 250.)

FIG. 1. Old style of hand-harpoon now little used.
FIG. 2. Hand-harpoon in general use about 1857.
FIG. 3. Hand harpoon now most in use on the Scotch whaling steamers.

Drawings by Capt. William Adams, of Dundee, Scotland.

Plate 196.

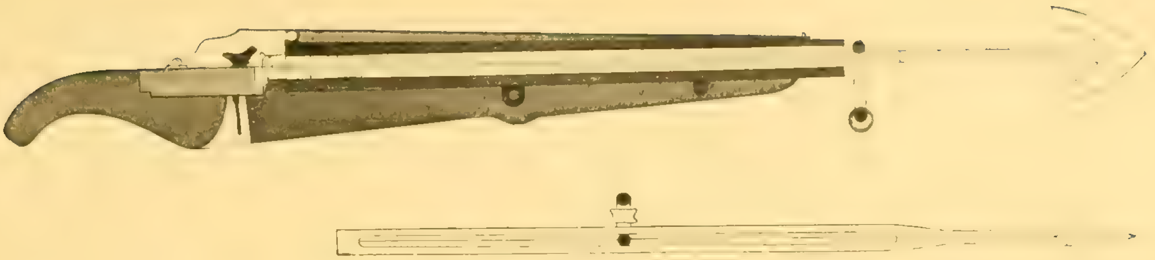
WHALING GUNS.

FIG. 1, English harpoon-gun and gun-harpoon now in use on the Scotch whalers.

FIG. 2. An early form of English whaling-gun.

FIGS. 3, 4, 5, Mason and Cunningham mounting boat-gun.

Fig. 3 is a perspective of the gun mounted in the bow of the whale-boat, ready for use; Fig. 4 is a top view of the gun and the casting C and trunnions; and Fig. 5 is a sectional view of the box E, which is fixed in the clumsy cleat B of the boat A, at E. In Fig. 5 the parts *e* and *f* are of metal, and d' is of some elastic substance. The gun is mounted at C on the standard D, which passes through the cushion-blocks E and enters the floor at D. In Fig. 4 *bb* are the trunnions, which are supported by the slides *a*, *a*. Rubber cushions *d*, *d* are placed around the slides *a*, *a* and at the rear of the trunnions *d*, *d*. The operation of the apparatus is as follows: The harpoon H, with line o' attached, is loaded into the muzzle. When the gun is fired, the force of the recoil is caught on the cushions *dd*, shown in Fig. 4, and partially by the cushion in box E, Fig. 5, thus converting the sudden blow of a recoil into a push.



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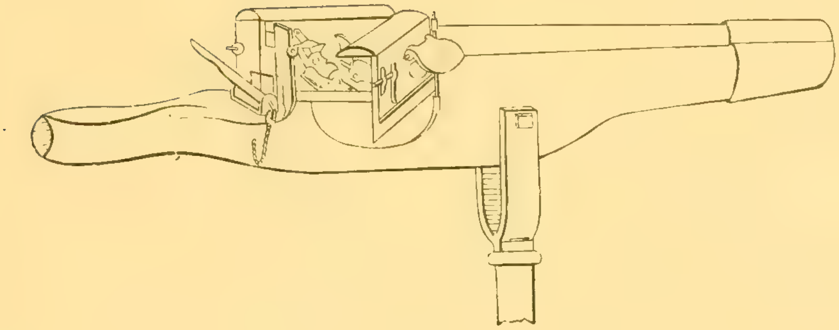

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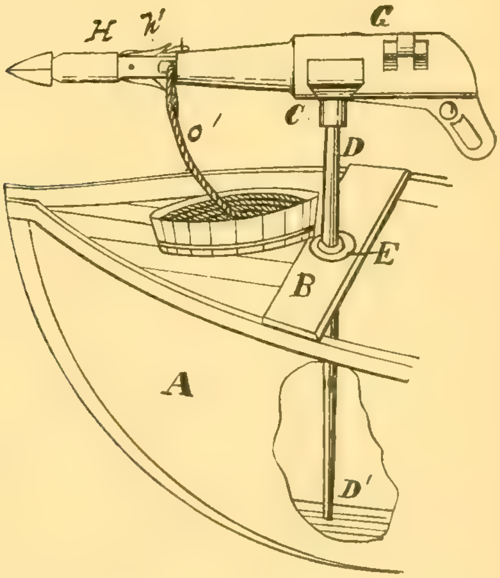


Fig. 3.

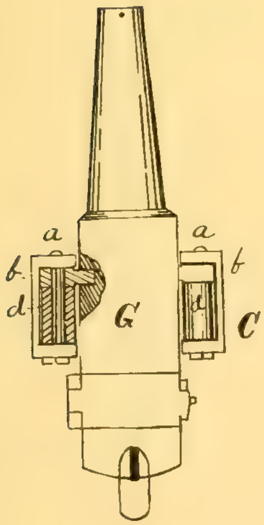


Fig. 4.

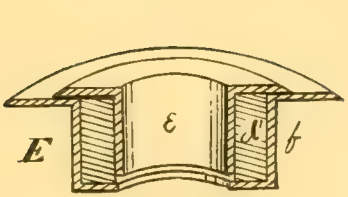


Fig. 5.

THE WHALE FISHERY.

English and American swivel guns. (Sect. v, vol. ii, p. 252.)

[See explanation on opposite page.]

Plate 197.

DARTING AND SHOULDER GUNS.

FIG. 1. Pierce and Cunningham darting gun and bomb-lance. A combined harpoon and lance used largely by Arctic whalemen.

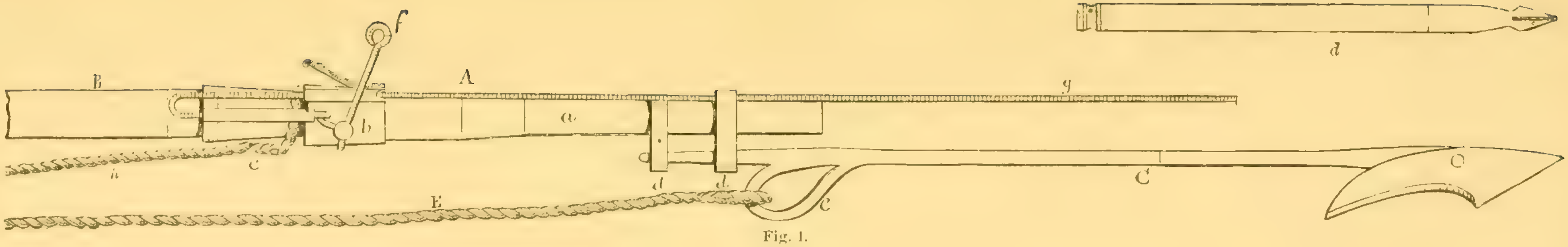
- *a*. Gun-metal barrel about 20 inches long.
- *B*. Ordinary harpoon pole, fitted into brass socket (*c*).
- *b*. Breech-pin and lock-case.
- *C*. Harpoon with whale-line (*E*) attached: and set in projections (*d*, *d*) on the gun.
- *d*. Bomb-lance fired from barrel (*a*).

  The harpoon entering the blubber brings the long wire rod (*g*) in contact with the whale and releases the trigger.
- *F*. Lever for cocking the gun.
- *h*. Line by which the gun is hauled back to the boat.

  Improved forms of darting guns have since been invented and will be illustrated in the Section on APPARATUS OF THE FISHERIES.

FIG. 2. Cunningham and Cogan gun; length, 33 inches; weight, 27 pounds. Used by Arctic steam whalers with bomb lance.

FIG. 3. Brand muzzle-loading whaling-gun (*a*) and bomb-lance (*b*).



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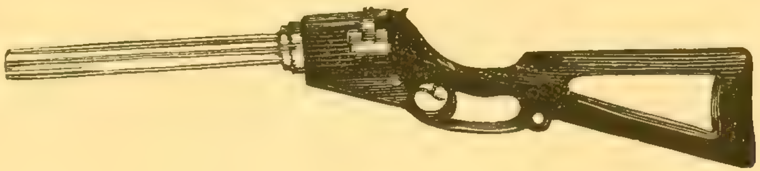


Fig. 2.

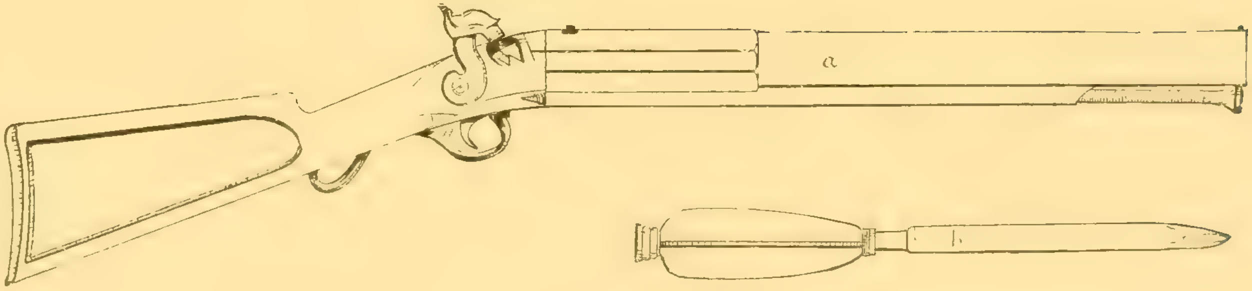


Fig. 3.

THE WHALE FISHERY.

1, Darting gun. 2, Cunningham and Cogan gun. 3, Brand muzzle-loading bomb-gun. (Sect. v, vol. ii, pp. 253, 254.)

[See explanation on opposite page.]

Plate 198.

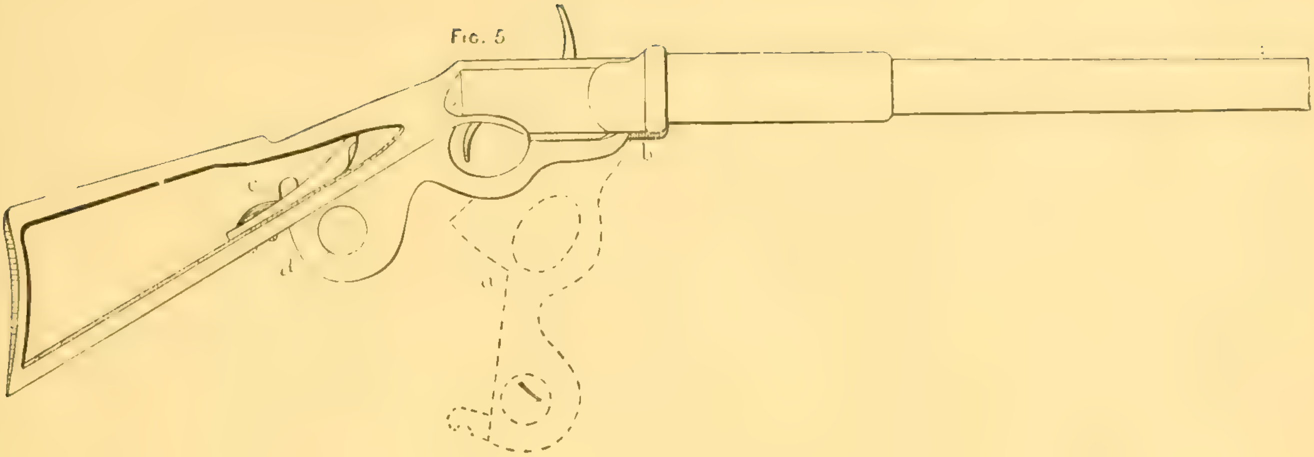
BOMB LANCE AND BREECH-LOADING WHALING-GUN.

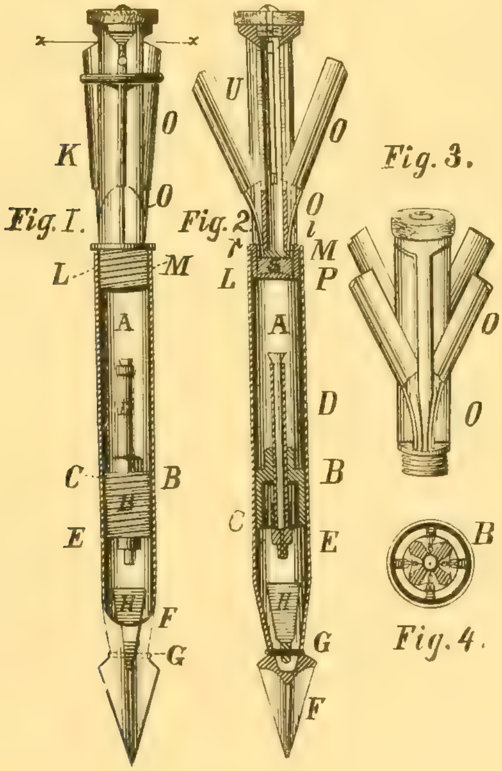
Figs. 1, 2, 3, 4 The Pierce bomb-lance. The figures illustrating the lance are from the drawings accompanying the specification of the patent, and the significance of some of the letters will not be explained here. Fig. 1 shows the lance with the wings (O) closed by a metal ring showing the arrangement when the implement is loaded in the gun. Fig. 2 represents the lance with wings expanded, the true position during flight. Fig. 3 is a perspective view of the tail-piece with the wings open, and Fig. 4 a cross-section of the same showing the wings closed. The fuse is ignited by a percussion cap The cap is placed on the nipple (E, Fig. 1) of the fuse tube (D) backward through the fuse-plug and communicates with the magazine (A). A metallic hammer or plunger (H) is held by a wooden pin (G). The concussion of the explosion of the charge when the gun is fired breaks the pin and releases the hammer, which, violently striking the percussion cap, explodes it and fires the fuse.

Fig. 5. Pierce and Egger's breech-loading gun; length, 36½ inches; weight, 24 pounds. The gun in most common use.

"To load the gun the lever (*c*) is raised, the thumb inserted at aperture (*d*), and the breech-block thrown down to *a*, when the cartridge can be readily inserted, the bomb-lance having previously been placed in the barrel from the muzzle. The breech-block is then raised and the gun is ready for use."

Fig. 5





THE WHALE FISHERY.

Pierce and Egger's breech-loading bomb-gun and Pierce bomb lance. (Sect. v, vol. ii, p. 253.)

(See explanation on opposite page.)

Plate 199.

WHALING ROCKET.

Figs. 1, 2, 3. The projectile consists of a cast-iron shell (Fig. 2), and a rocket with a loop extension (Fig. 3). The shell, 15 inches long, has been detached to show the toggle, which is fastened by two links to the projecting end or shoulder of the rocket. The bomb is filled with peculiar composition said to be known only to the inventors. The rocket is made of brass and the loop extension (*bb*) of wrought-iron; the total length is 66 inches, and the length of the toggle (*a*) about 10 inches. When the bomb with its rocket atachment (Fig. 3) is loaded in the gun (Fig. 3) which is partially supported by a standard (*h*), the link (*g*), with the tow-line (*f*) attached, hangs from the muzzle. The two rods projecting in the rear fastened to the iron plate, form the hinder part of the gun. The adjustable flange (*a*) occupies a position parallel to the gun when the gunner takes aim. The fire is communicated to the combustible material in the rocket-chamber by means of a pistol (*d*) and the issue of gas from the rear of the rocket propels the apparatus. During its flight the shackle (*g*) and the tow-line (*f*) take the position shown in Fig. 3. When the bomb explodes in the whale the toggle (*a*) and chain are released and fasten in the blubber or flesh, preventing the withdrawal of the apparatus. Simultaneously with the discharge of the gun, the flange (*a*) is thrown up in a vertical position following the path, as represented by the dotted lines (*cc*), to protect the eyes of the gunner. We shall have occasion to again refer to this apparatus in the account of shore whaling on the Northwest coast.

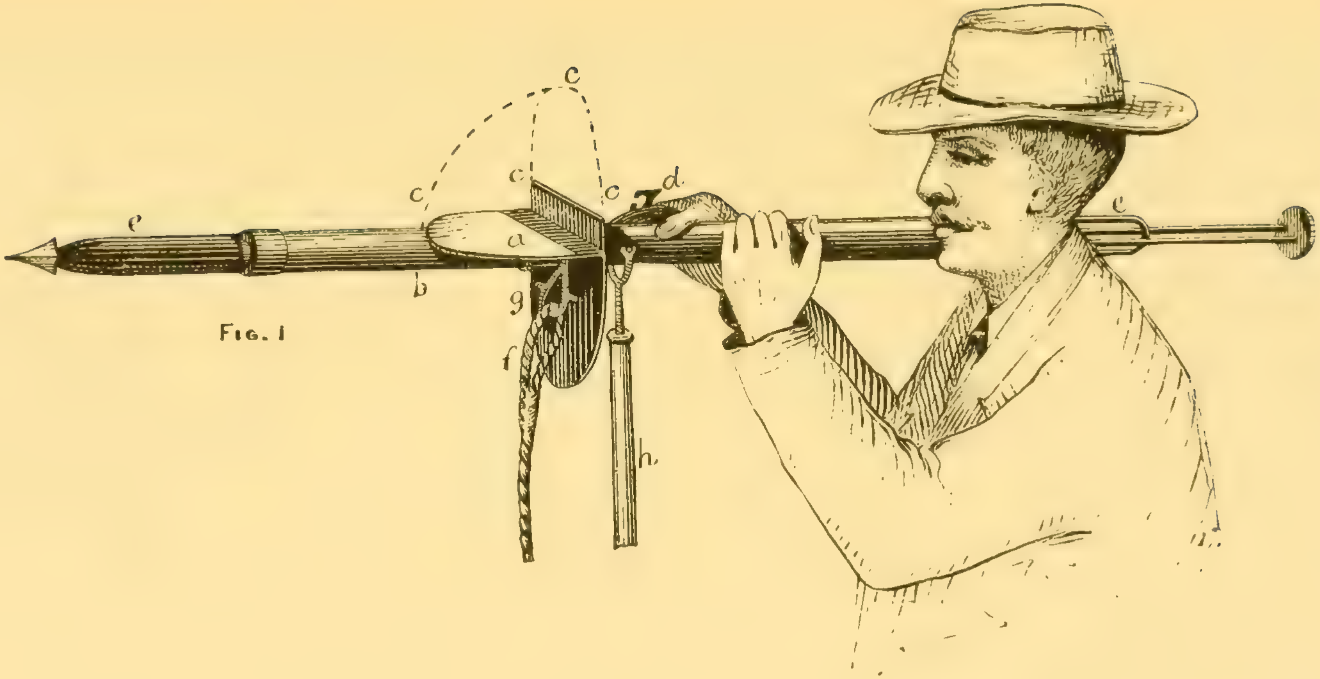
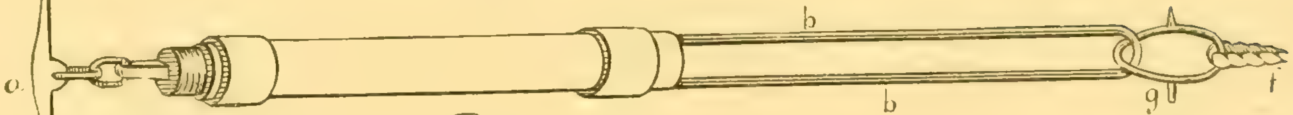


Fig. 1

Fig. 3



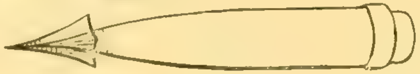
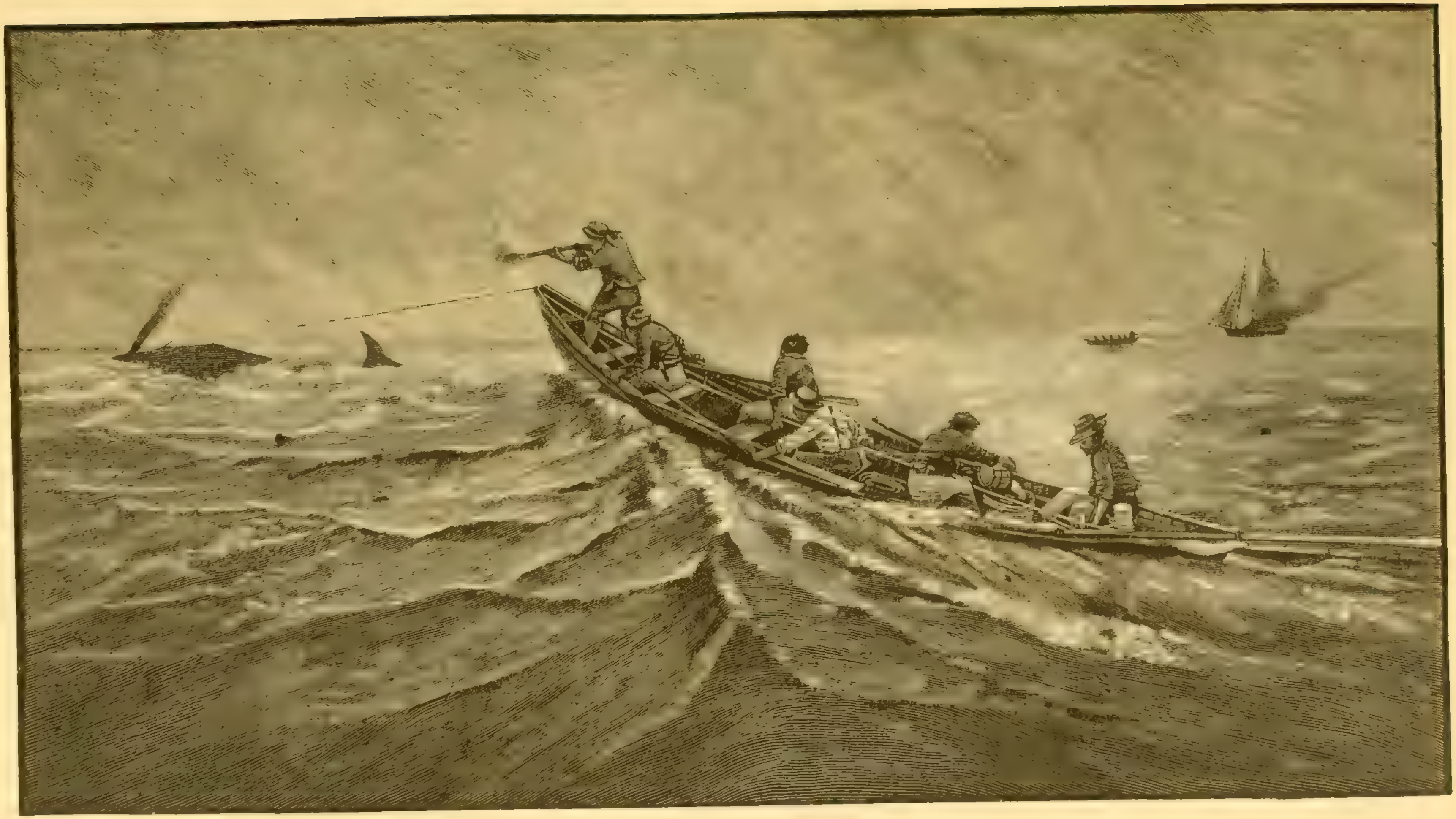


Fig. 2

THE WHALE FISHERY.

Whaling rocket. (Sect. v, vol. ii, p. 254.)

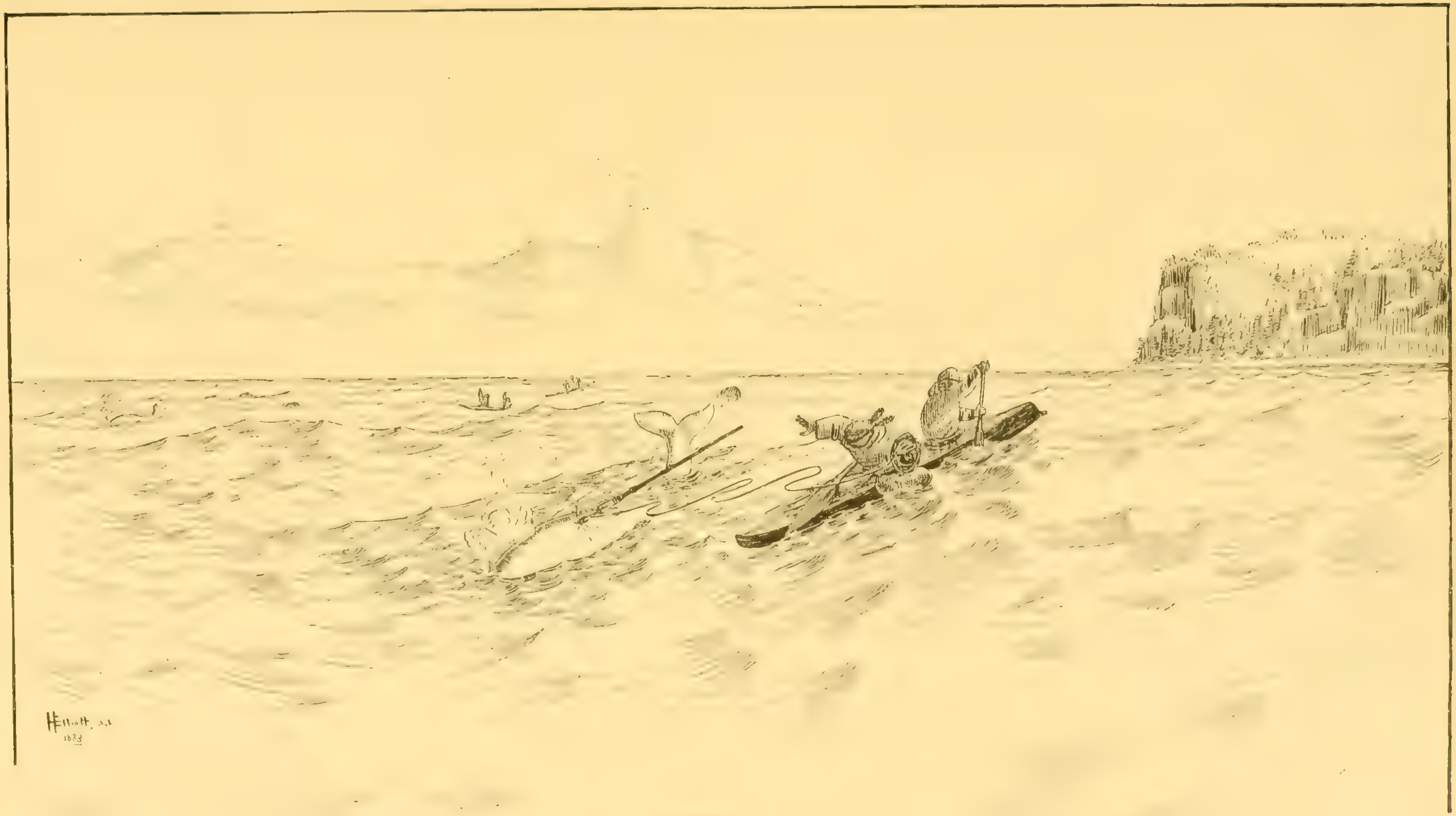
[See explanation on opposite page.]



THE WHALE FISHERY.

Boat fastened to whale by harpoon and line; killing the whale with bomb-lance. (Sect. v, vol. ii, pp. 45, 262, 267.)

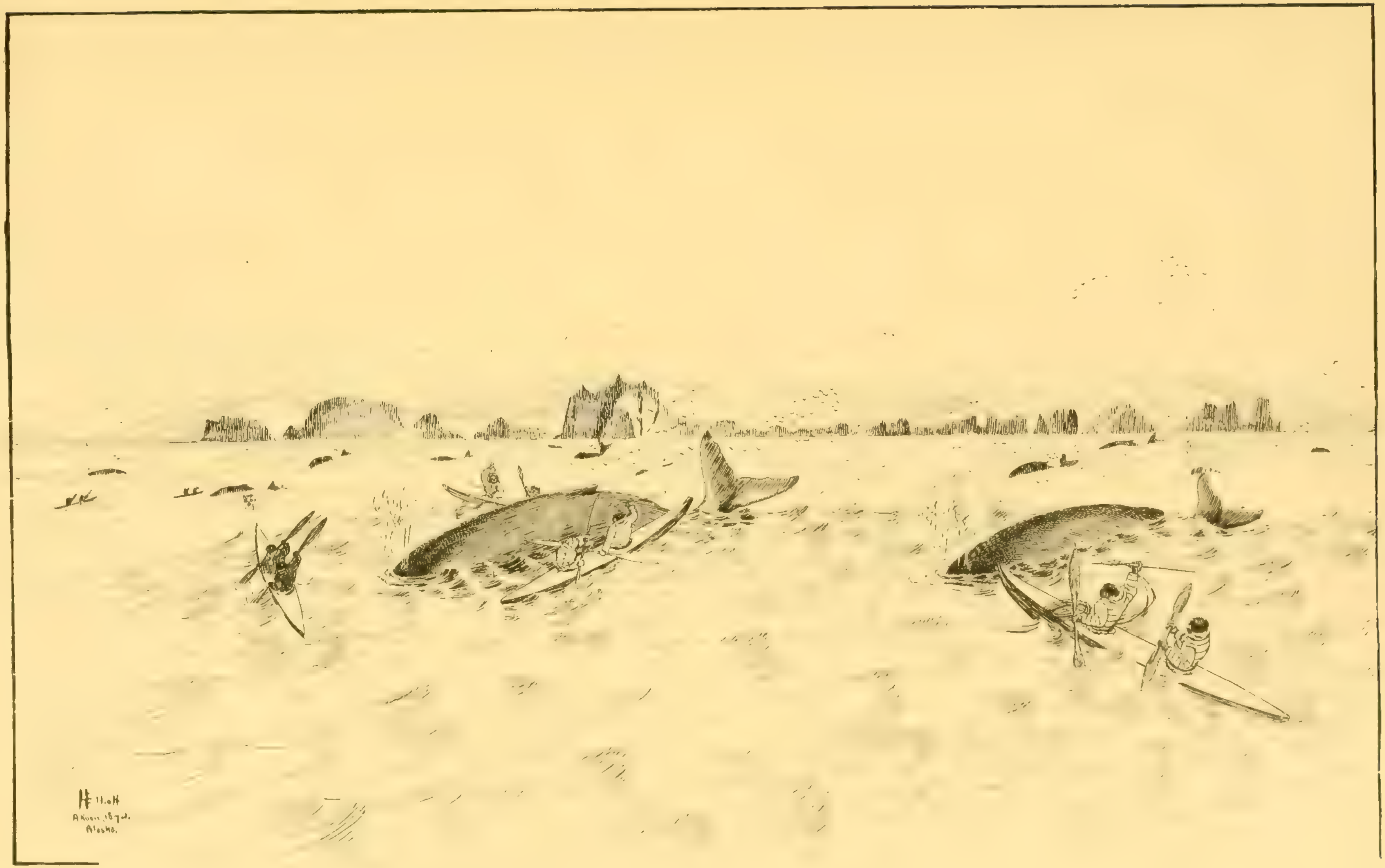
From painting by J. S. Ryder.



THE WHALE FISHERY.

Natives hunting the beluga or white whale, Cook's Inlet, Alaska. (Sect. v, vol. ii, p. 61.)

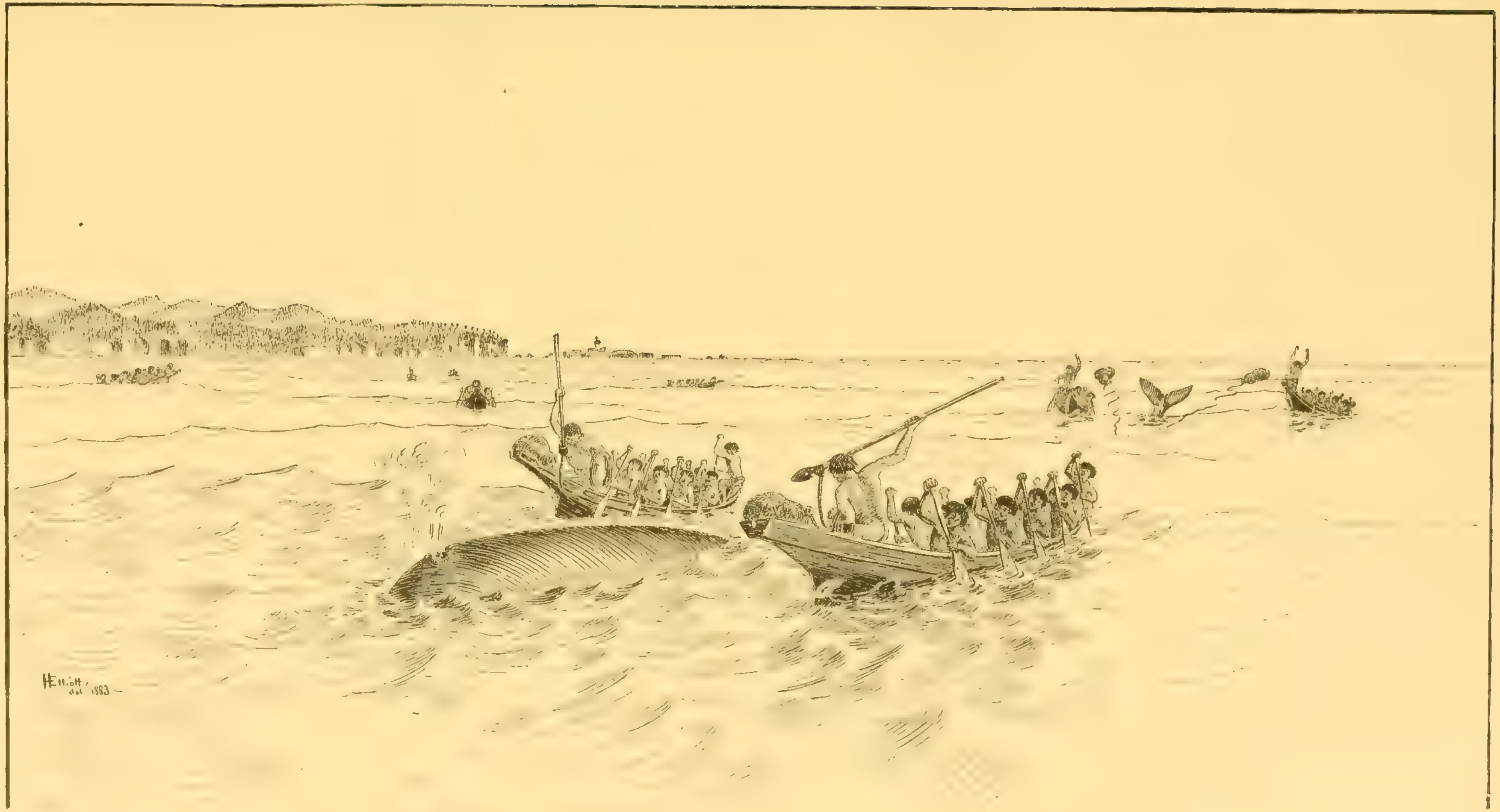
Drawing by H. W. Elliott.



THE WHALE FISHERY.

Aleuts planting glass, obsidian, and jade darts in a school of humpback whales, Akoon Island, Bering Sea. (Sect. v, vol. ii, pp. 61, 62.)

Drawing by H. W. Elliott.



THE WHALE FISHERY.

Makah Indians whaling at entrance to Fuca Straits. (Sect. v, vol. ii, p. 62.)

Drawing by H. W. Elliott.

Plate 204.

CUTTING IN THE BOWHEAD AND SPERM WHALE.

(Vol. II, pp. 277–286.)

FIGS. 1, 2. Diagram of bowhead whale.

A. Fluke-chain adjusted around the "small" and leading to windlass-bits.
B. Fin-chain fastened around the left fin.
C. Ring of fin-chain into which blubber-hook is fastened to raise fin and blanket piece—the starting-point for unwinding the blubber from the whale.
D. Hole in root of lip into which blubber-hook is inserted to hoist lip on board ship.
F to G. Scarf to detach and hoist lower lip.
E to H. Scarf cut from fin below and forward of eye to spout-holes (H) on head.
E to I. Scarf from fin (E) aft to back of whale (I).
J to K. Scarf cut in removing blubber while whale is being rolled. The remaining spiral lines indicate final scarfs.
L. Mortised hole in top of head for head-chain.
M. The old method of hoisting head by the old head-chain and toggle, the chain being rove through the spout-holes.
M, M. Figure (2) the new method of hoisting in head of whale by the use of the chain-strapped blocks. Tail of chain rove from H under several feet of blubber to and through the mortised hole at L and coupled to sister-hooks (on lower block).
N. Cutting made by monkey, with the ax, while overboard, in order to detach the head-bone.
O. The lower part of the bone, which, being very thin, requires light strokes in order to detach it.
P. Markings showing where the flat-shanked spade is inserted to start the throat-bone in detaching the head.
Q. Showing (approximately) where the hole is made in the throat in order to haul it on board by the present method.
R. Dotted lines showing the throat-chain, and toggle and the former method of taking in the throat.
S. Dotted lines showing where the backbone of whale is severed when taking off blubber in order to lessen the strain on the windlass.
T. Wide section of blanket piece which is trimmed down by the boarding-knife when boarding blubber.

FIG. 3. Diagram of sperm whale showing method of cutting in. (Further description will be found in the chapter on oil rendering in the Section on PREPARATION OF FISHERY PRODUCTS.)

PLATE 204.

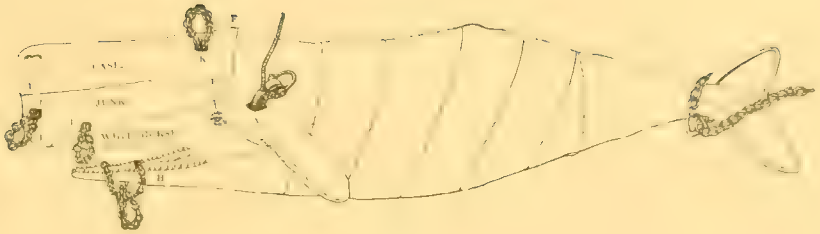


Fig. 3.

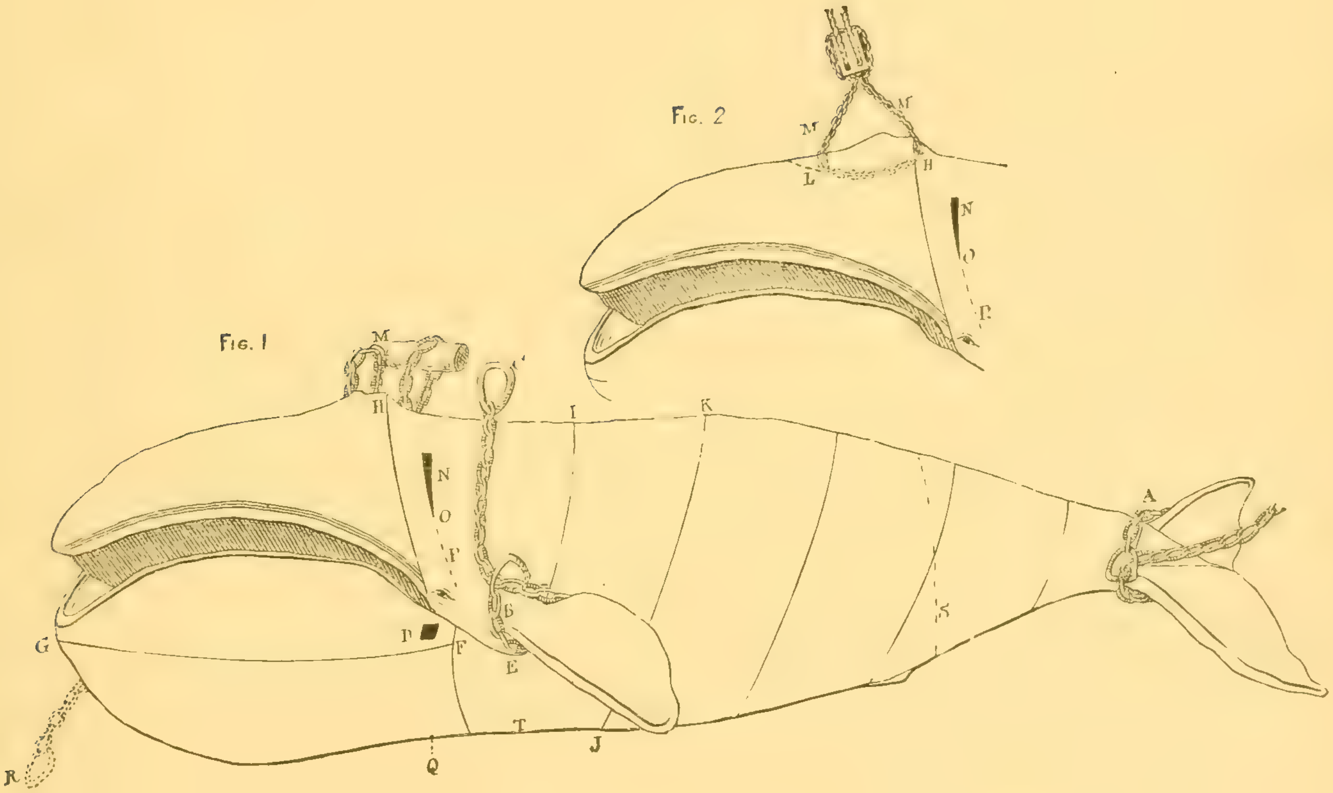


Fig. 2

Fig. 1

THE WHALE FISHERY.

Diagram of bowhead and sperm whales, showing methods of cutting in. (Sect. v, vol. ii, pp. 277-286.)

Drawings by Capt. C. M. Scammon and Capt. W. M. Barnes.

[See explanation on opposite page.]

Plate 205.

BOAT SPADE AND CUTTING SPADES.

(Vol. II, pp. 264, 277, 281.)

FIG. 1. Boat spade (*b*) and sheath (*a*); formerly used to disable a running whale.

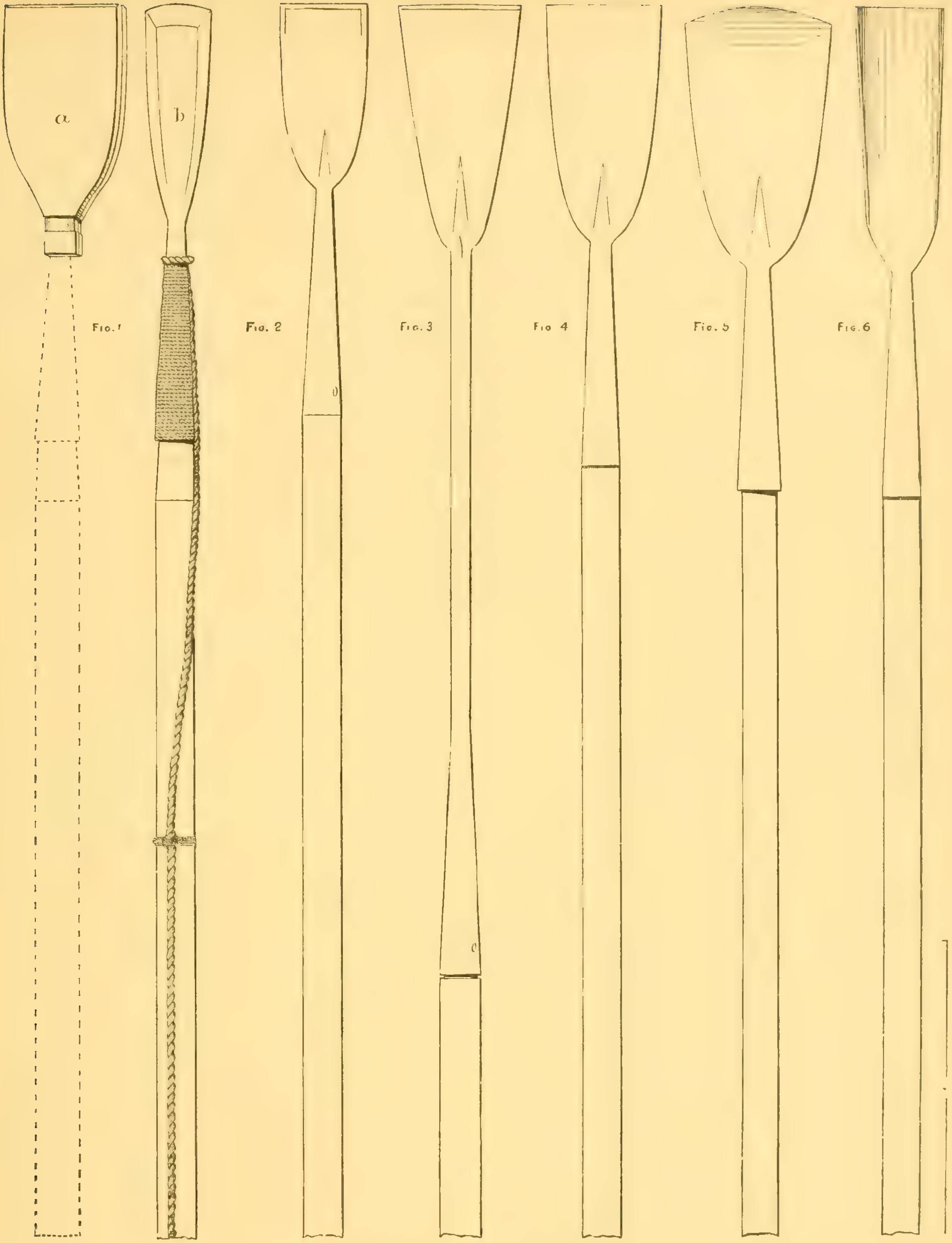
FIG 2. The narrow-cutting spade or thin boat-spade.

FIG. 3. The flat or round shank spade used to cut a passage for the "head-strap" to hoist in the head of the right whale or bowhead, and to remove the throat-bone (whalebone).

FIG. 4. Cutting spade for "scarfing."

FIG. 5. Cutting spade for "leaning up."

FIG. 6. Half-round spade.



THE WHALE FISHERY.

Boat-spade and cutting-spades. (Sect. v, vol. ii, pp. 264, 277, 281.)

[See explanation on opposite page.]

Plate 206.

CUTTING TACKLE USED IN CUTTING IN A WHALE.

(Vol. II, pp. 277–281.)

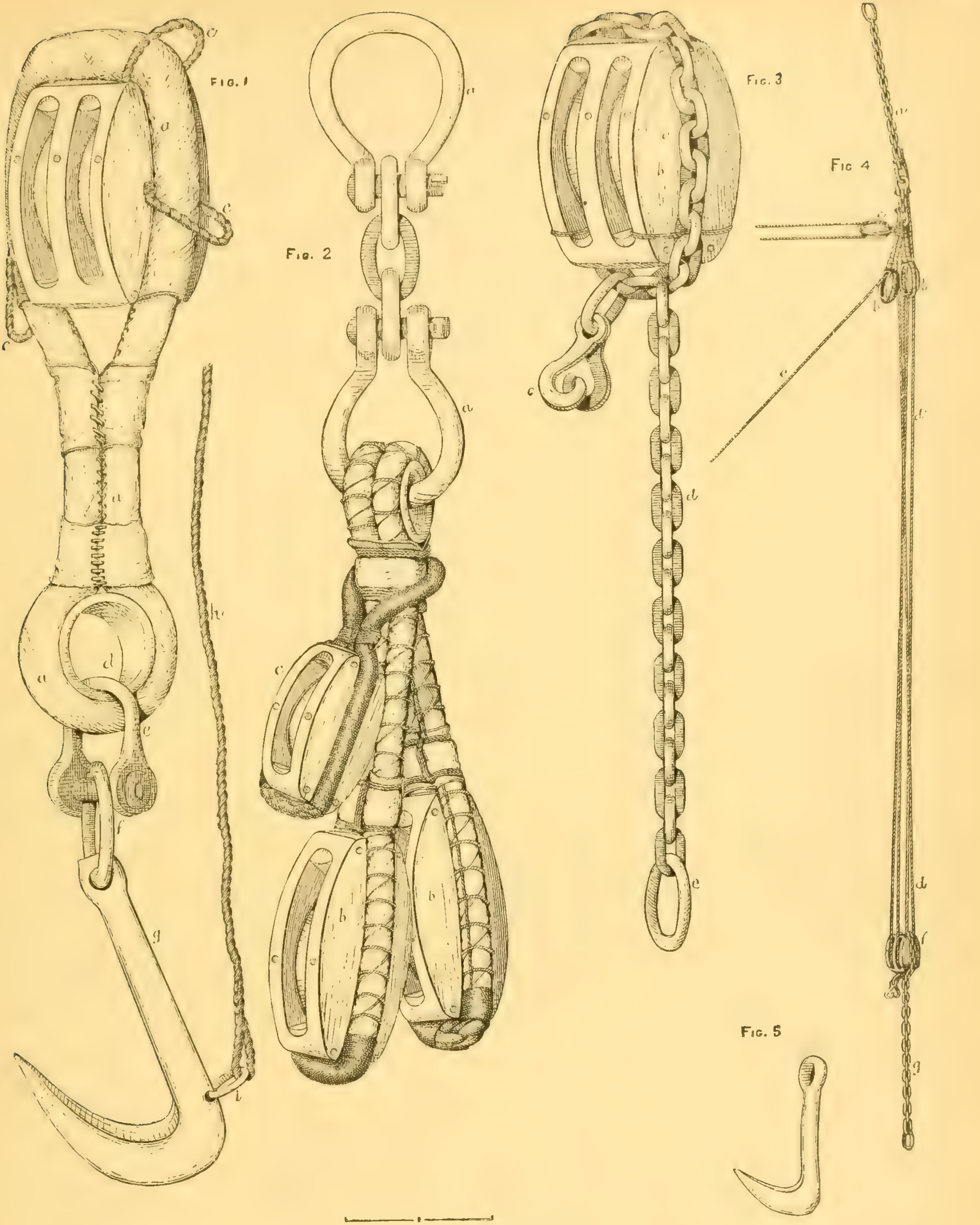
FIG. 1. Lower block strapped with rope (*a a a*), and blubber hook (*g*), shackled into the grommet (*d*). The rope beckets (*e e e*) are used for convenience in handling the block, and the back lashing (*h*) by the officer in directing the point of the hook into a hole in the blubber.

FIG. 2. Upper blocks (*b b*), guy block (*c*), pendant shackles (*a a*), and links.

FIG. 3. Lower block (*b*) strapped with chain (*d*) and sister hooks (*c*) into which the tail may be coupled by means of the link (*e*).

FIG. 4. Perspective view of cutting-tackle, showing the position it assumes when suspended from the mast-head. It should be guyed out by means of the guy-block and robe (*c*), and the end of the cutting-falls (*e*) should lead to the windlass.

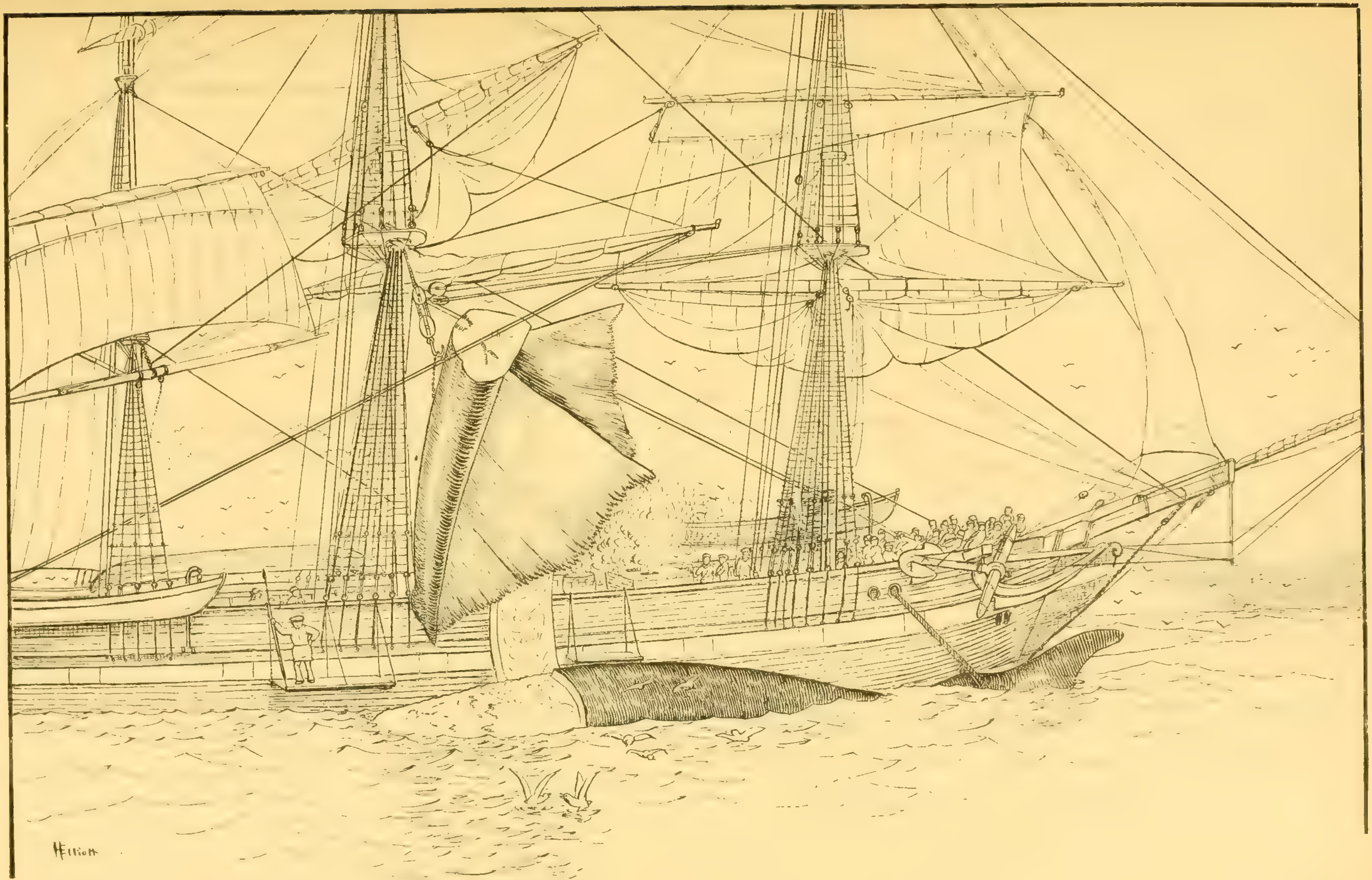
FIG. 5. An implement called the small blubber hook, used to manipulate blubber on the vessel.



THE WHALE FISHERY.

Cutting-tackle used in "cutting in" the whale. (Sect. v, vol. ii, pp. 277-281.)

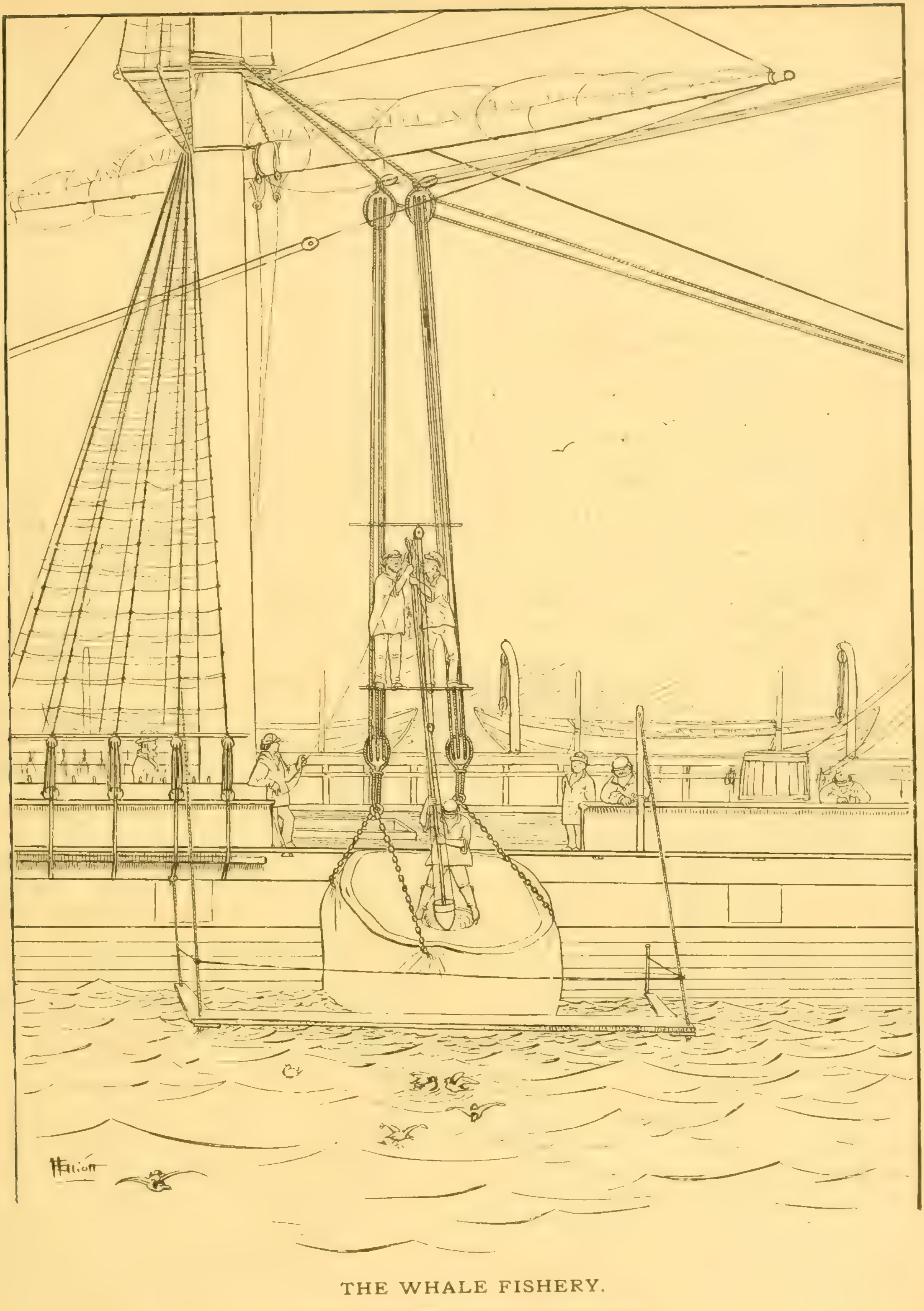
[See explanation on opposite page]



THE WHALE FISHERY.

"A ship on the Northwest coast of America cutting in her last right whale." (Sect. v, vol. ii, p. 277.)

Drawing by H. W. Elliott, from a French lithograph designed by B. Russell, of New Bedford.



THE WHALE FISHERY.

"Bailing in the case" from head of sperm whale.

Drawing by H. W. Elliott from a French lithograph designed by B. Russell of New Bedford.

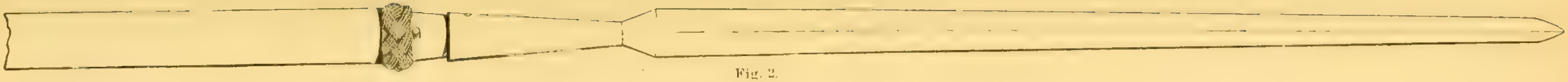


Fig. 2.

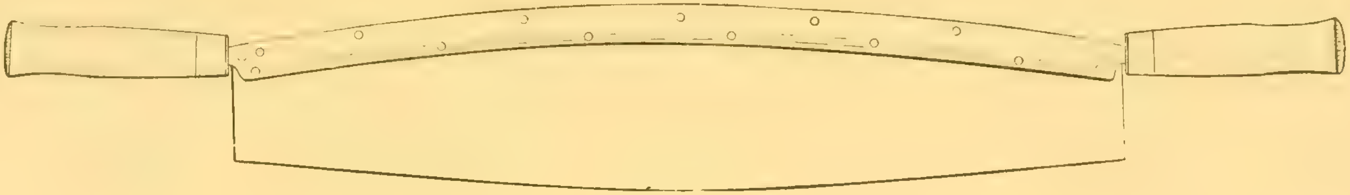


Fig. 1.

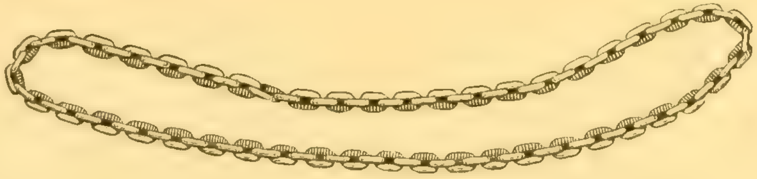


Fig. 5.

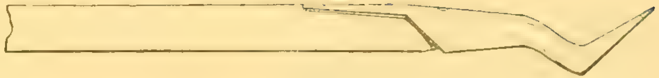


Fig. 9.

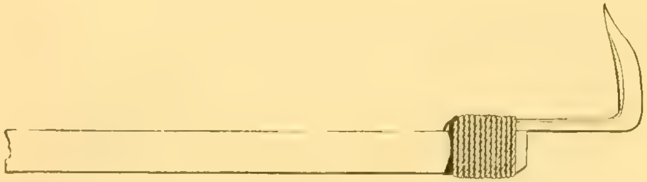


Fig. 9.

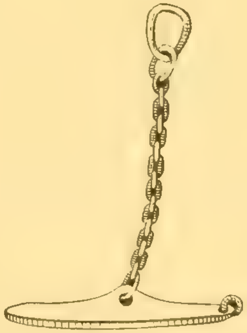


Fig. 6

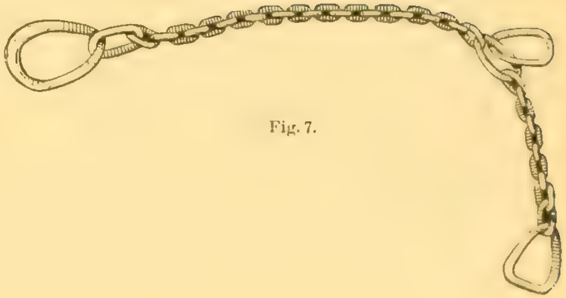


Fig. 7.

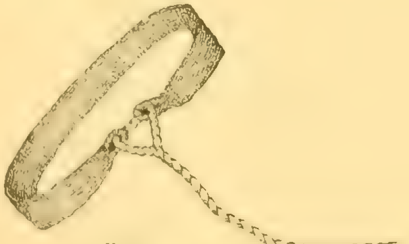


Fig 3

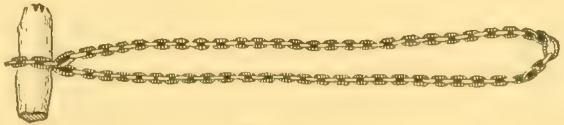


Fig. 8.

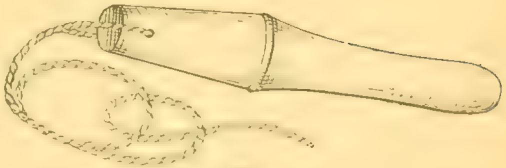
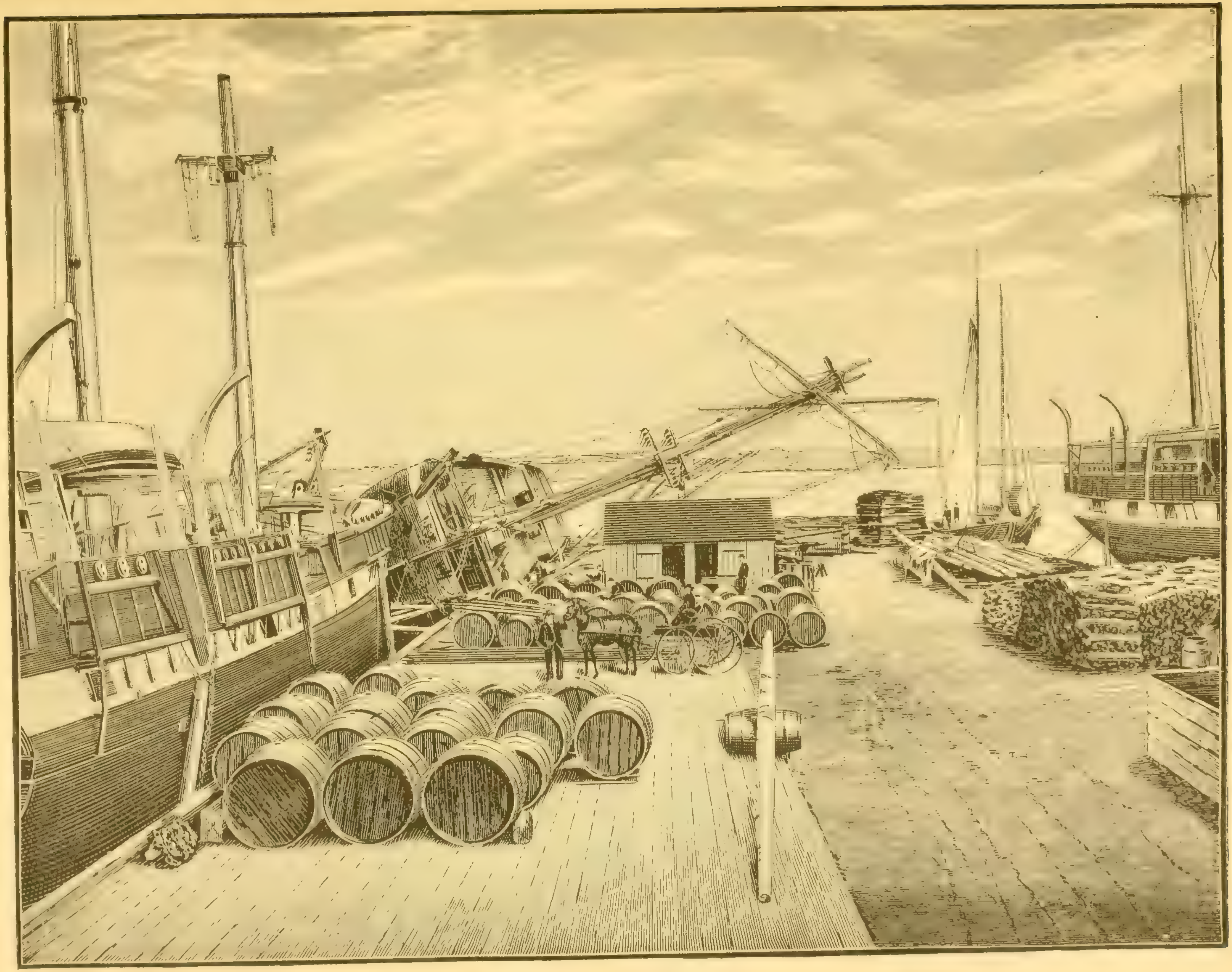


Fig 4

THE WHALE FISHERY.

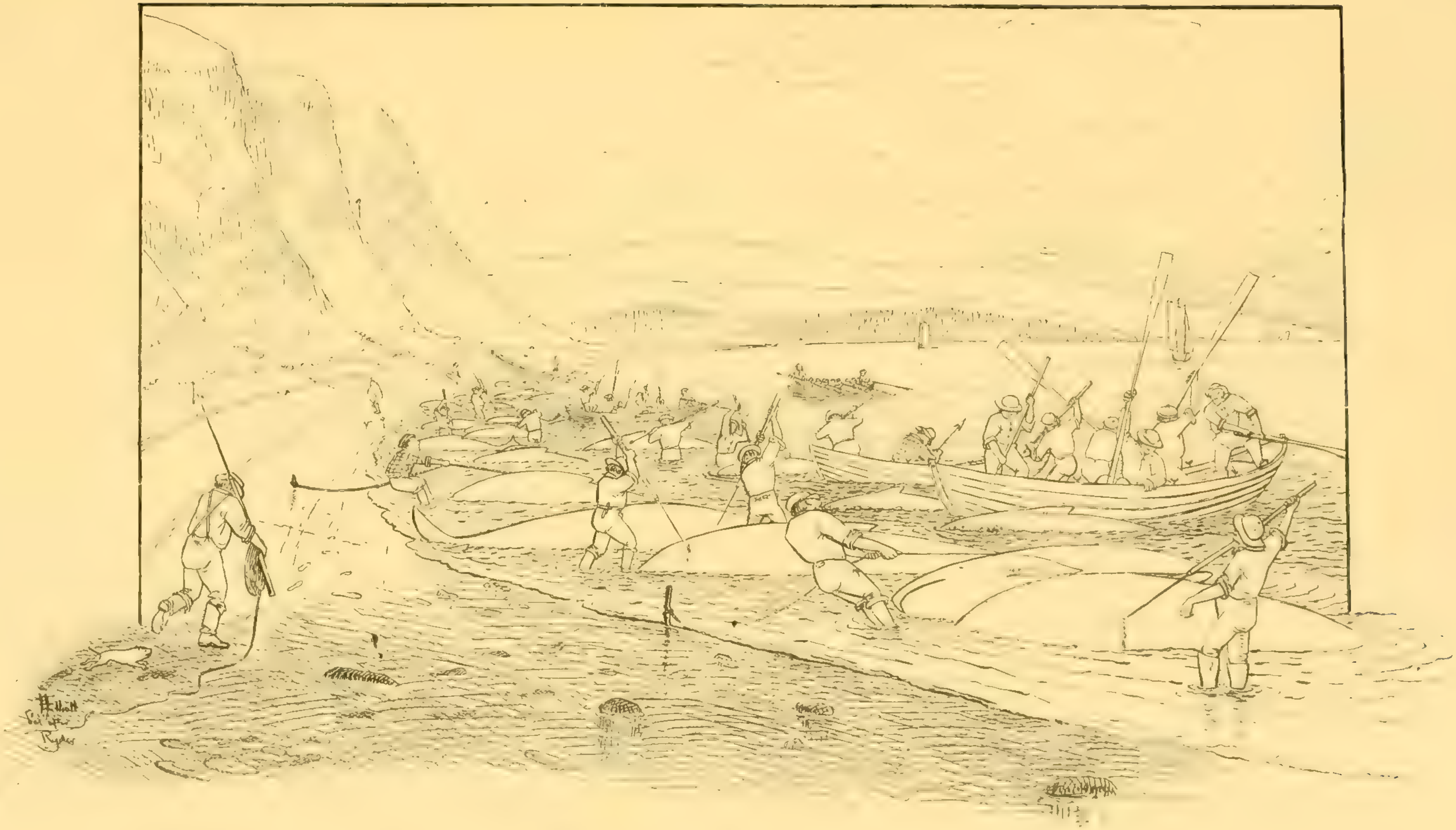
Fig. 1. Blubber-mincing knife.
Fig. 2. Boarding-knife.
Fig. 3. Monkey-belt.
Fig. 4. Wooden toggle.
Fig. 5. Chain strap.
Fig. 6. Throat-chain.
Fig. 7. Fin-chain.
Fig. 8. Head-strap.
Figs. 9. Blubber-hooks.



THE WHALE FISHERY.

Whale-ships at New Bedford wharves; ship hove down for repairs; oil-casks. (Sect. v, vol. ii, pp. 289, 290.)

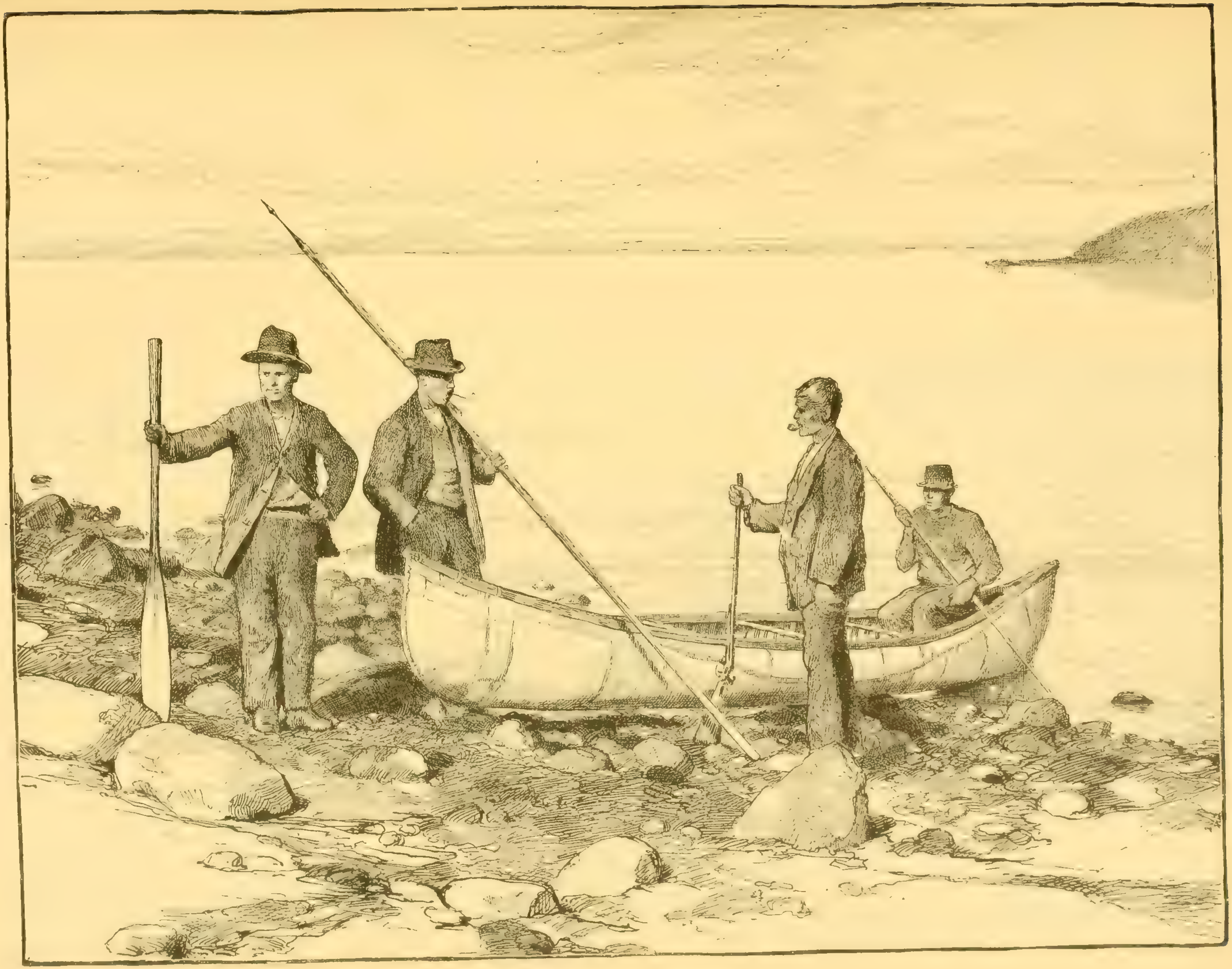
From a photograph by U. S. Fish Commission



THE BLACKFISH FISHERY.

The capture of a school of blackfish in Cape Cod Bay. (Sect. v, vol. ii, pp. 295, 307.)

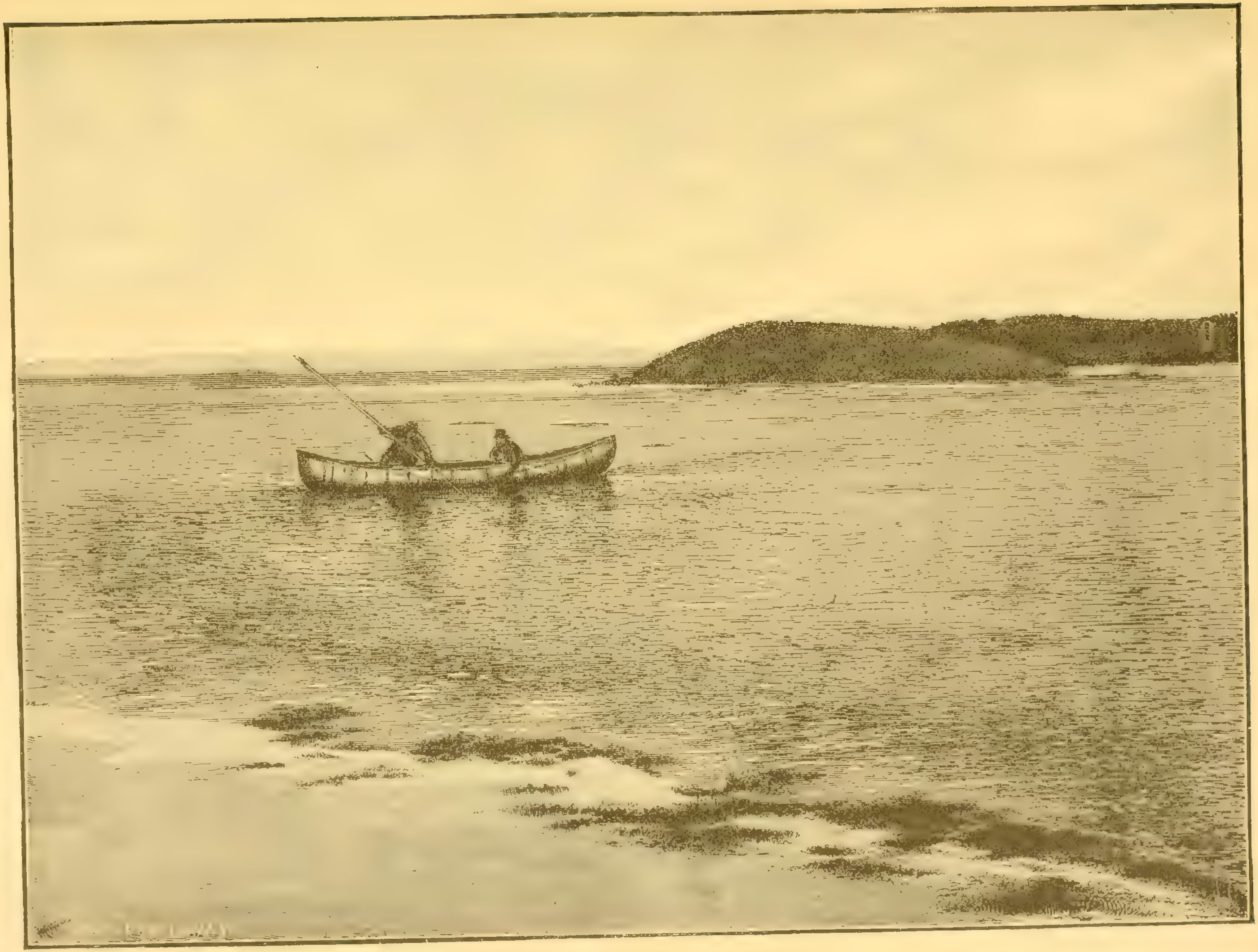
Drawing by H. W. Elliott from a sketch by J. S. Ryder



THE PORPOISE FISHERY.

Indian porpoise hunters of Passamaquoddy Bay: canoe, rifle, and lance for capture of porpoise. (Sect. V, vol. II, p. 308.)

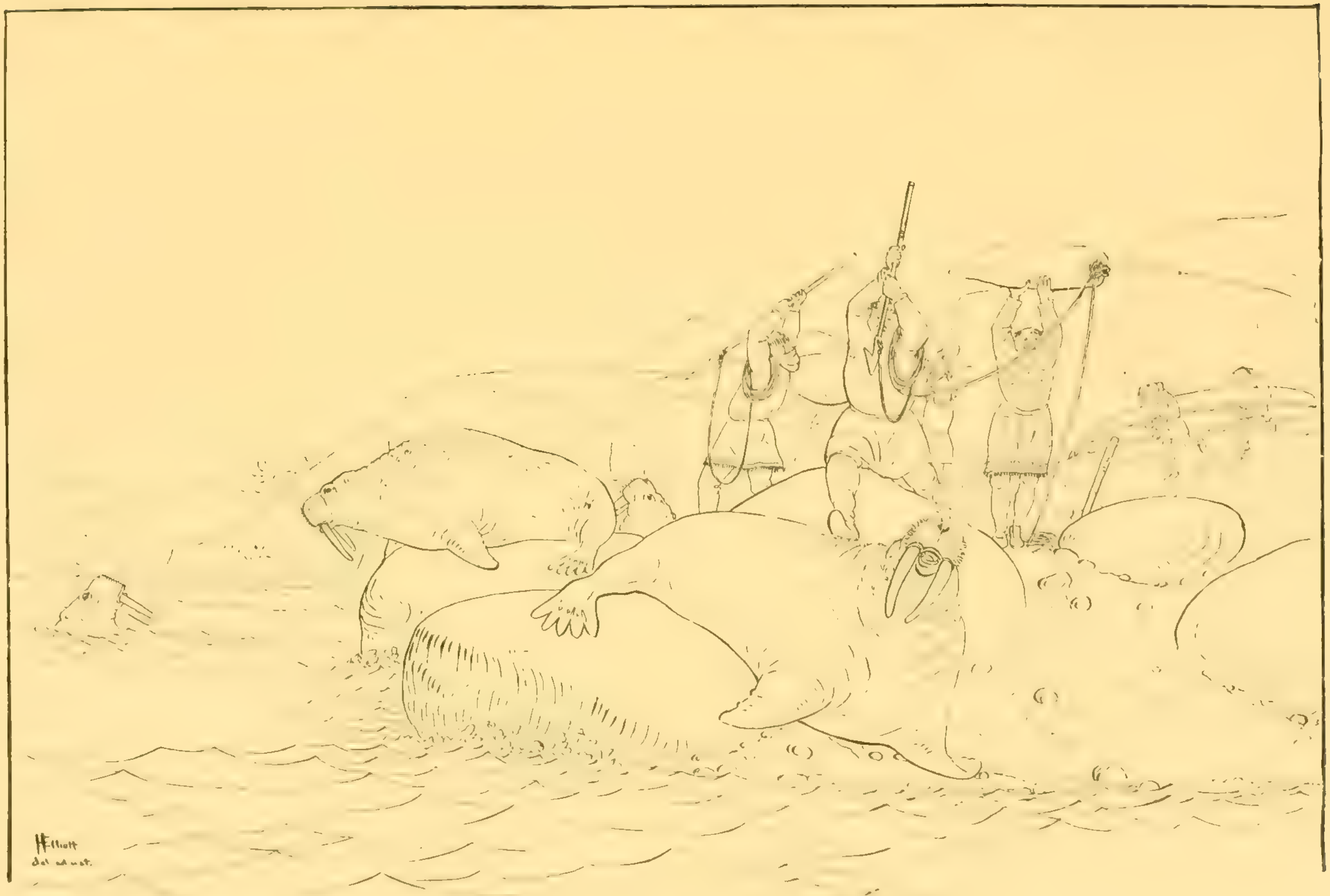
From a photograph by T. W. Smillie.



THE PORPOISE FISHERY.

Passamaquoddy Bay Indians lancing and securing a porpoise. (Sect. v, vol. ii, p. 308.)

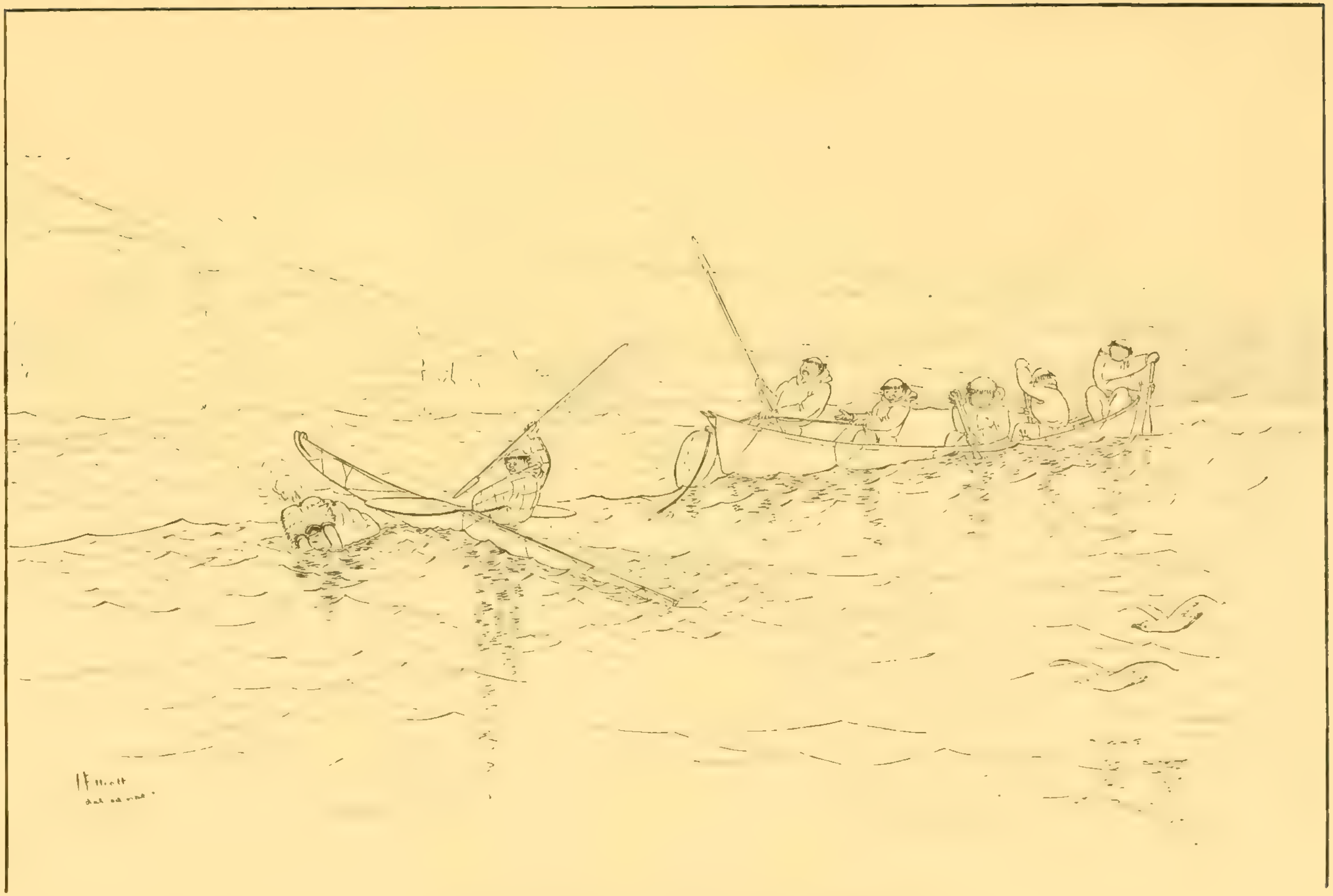
From a photograph by T. W. Smillie



THE PACIFIC WALRUS FISHERY.

Innuits of St. Lawrence Island, Alaska, surprising and harpooning a herd of walruses. Sect. v, vol. ii, p. 313.)

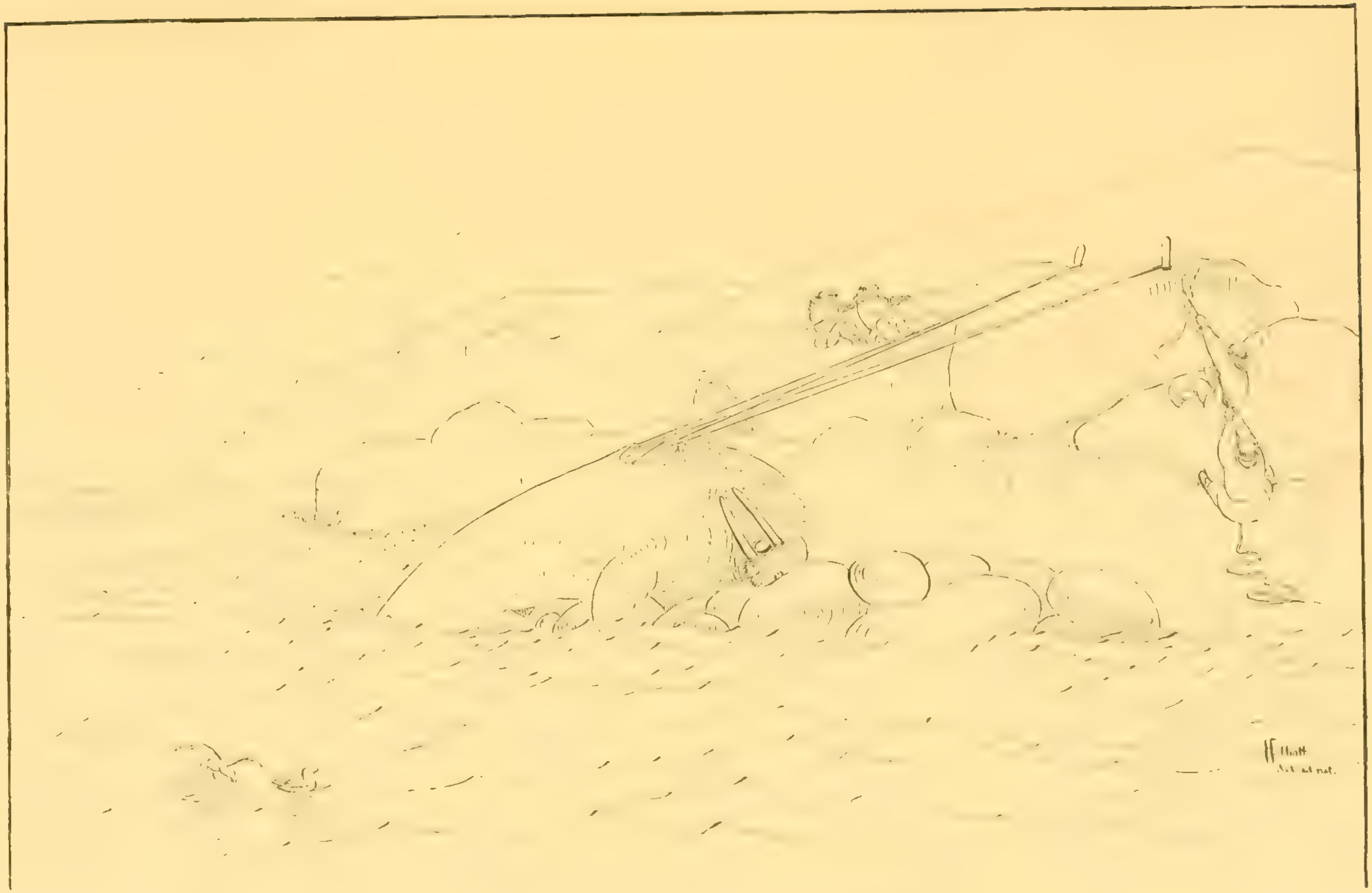
Drawing by H. W. Elliott.



THE PACIFIC WALRUS FISHERY.

The walrus "coup": Eskimo lancing the exhausted walrus, St. Lawrence Island: Mahlemoot dresses, bidarka, baidar, etc., of Alaska.
(Sect. v, vol. ii, p. 313.)

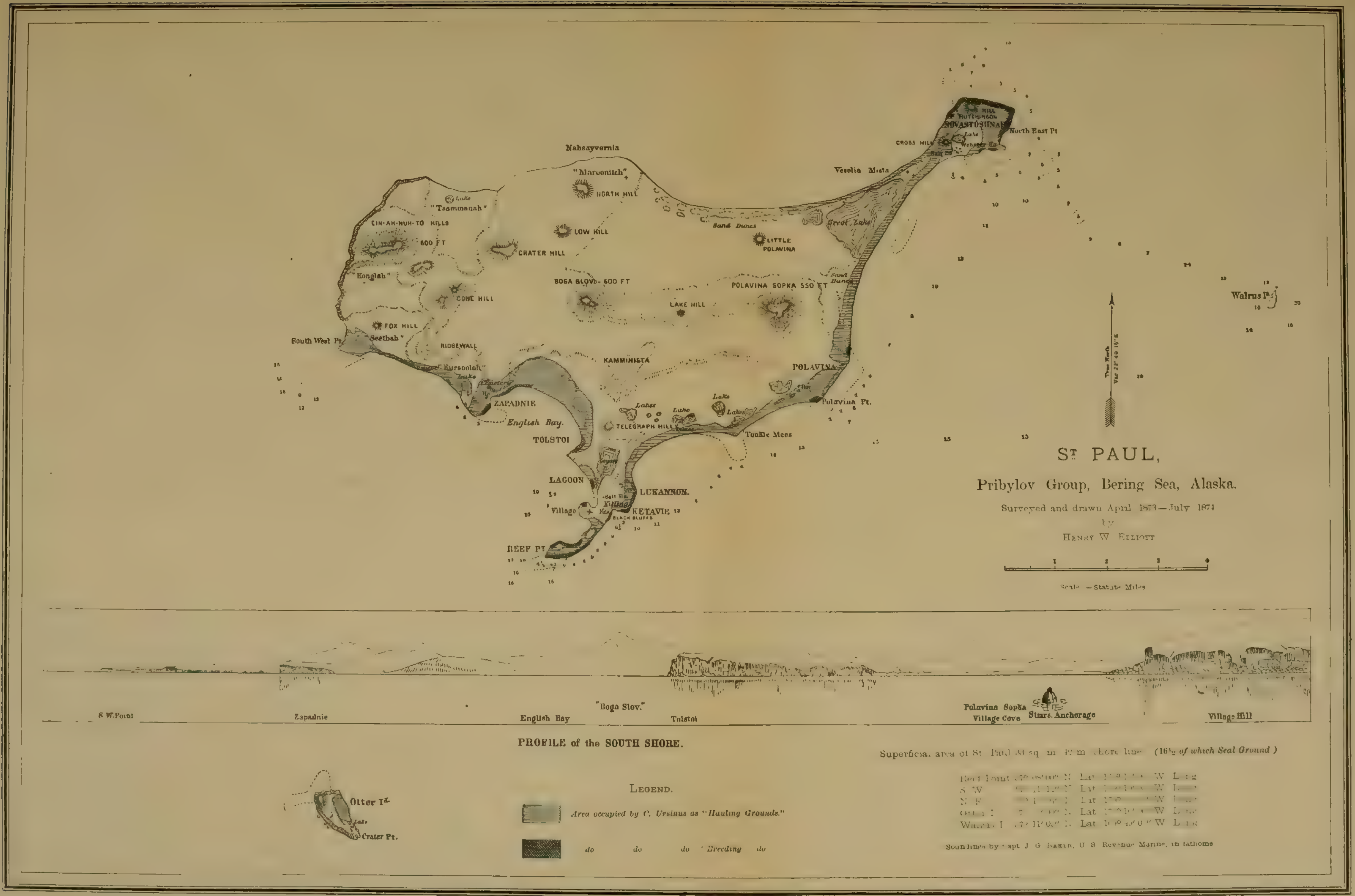
Drawing by H. W. Elliott.



THE PACIFIC WALRUS FISHERY.

Innuits of St. Lawrence Island, Alaska, hoisting a walrus carcass. (Sect. V, vol. II, p. 311

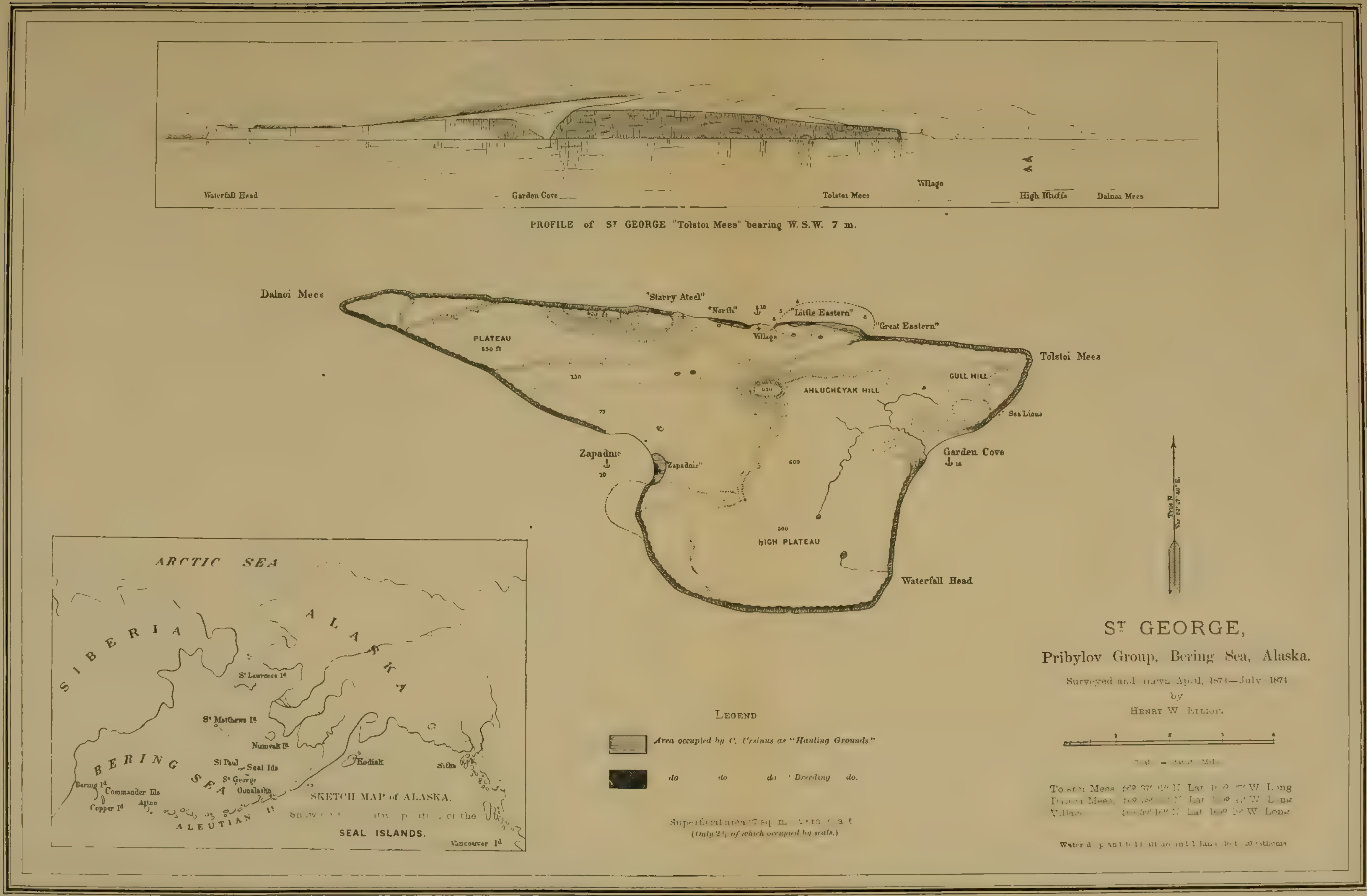
Drawing by H. W. Elliott.



THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

(Sect. v, vol. ii, p. 322.)

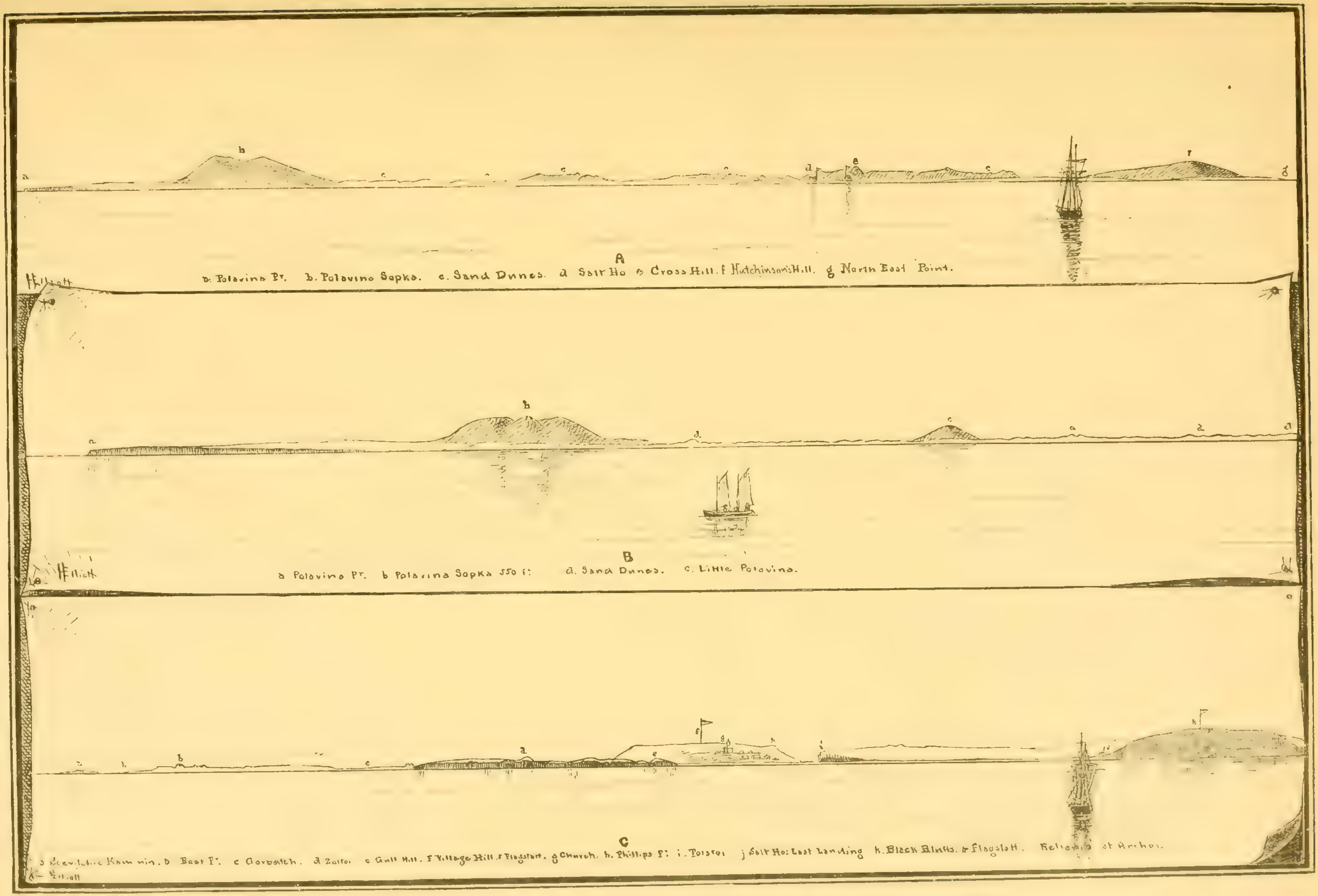
PLATE 218.



THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

(Sect. v, vol. ii, p. 322.)

PLATE 219

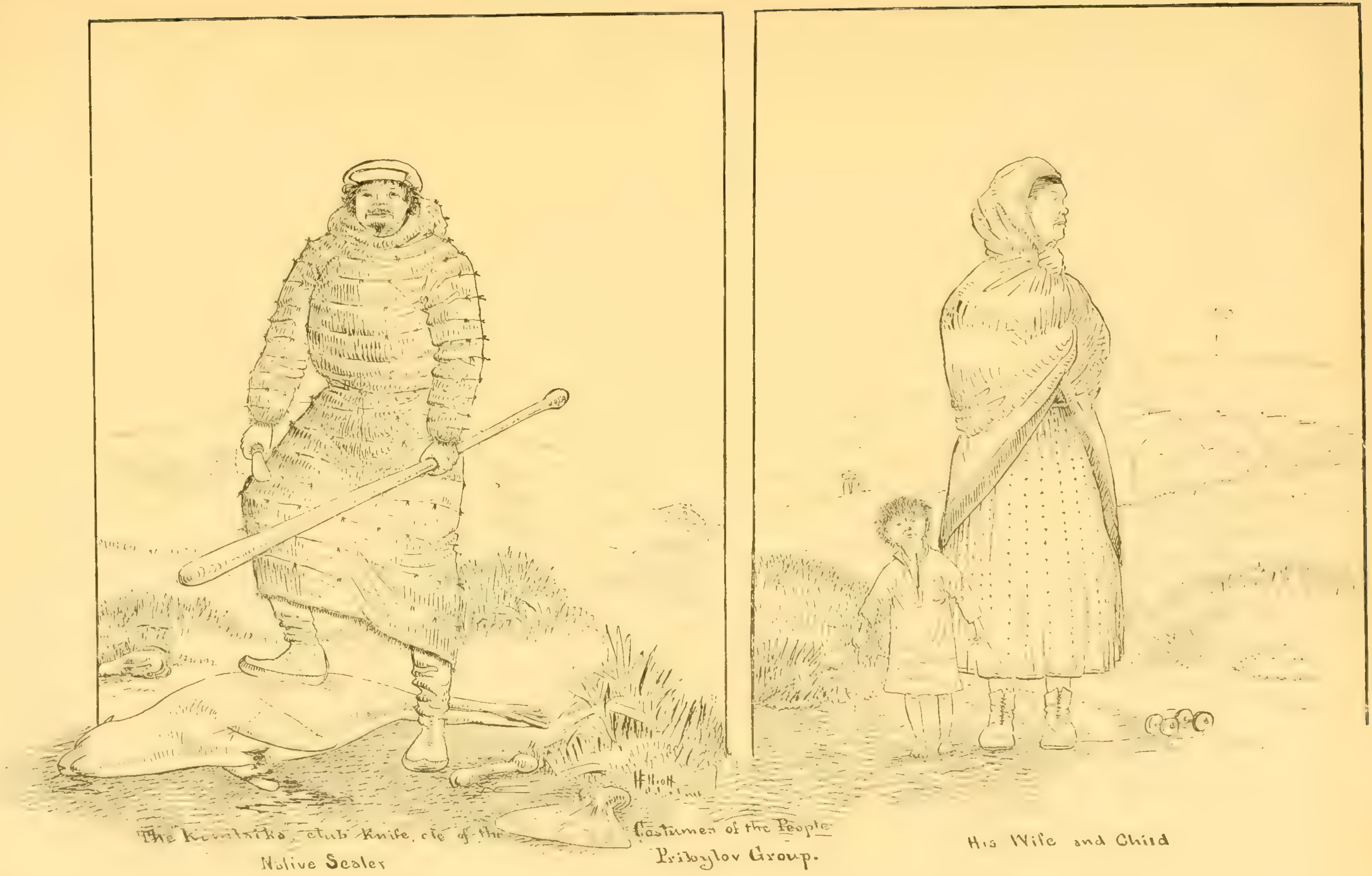

A
a. Polavina Pt. b. Polavina Sopka. c. Sand Dunes. d. Salt Ho. e. Cross Hill. f. Hutchinson's Hill. g. North East Point.
B
a Polavina Pt. b Polavina Sopka 550 ft. d. Sand Dunes. c. Little Polavina.
C
a Lee-side Kamnin. b East Pt. c Gorbatch. d Zoltoi. e Gull Hill. f Village Hill & Flagstaff. g Church. h. Phillips Pt. i. Tolstoi. j Salt Ho: East Landing. k. Black Bluffs. & Flagstaff. Relief ship at Anchor.
H. W. Elliott
Elliott
Elliott

THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

Profiles of the east coast of St. Paul's Island. (Sect. v, vol. ii, pp. 325-329.)

A. Northeast shore of St. Paul's Island, from a point at sea about eight miles distant to eastward, magnetic.
B. Polavina Sopka and Point, from a seaward view three miles distant: the mountain bearing west, magnetic.
C. Village and East Landing, from the usual anchorage there: one mile distant.

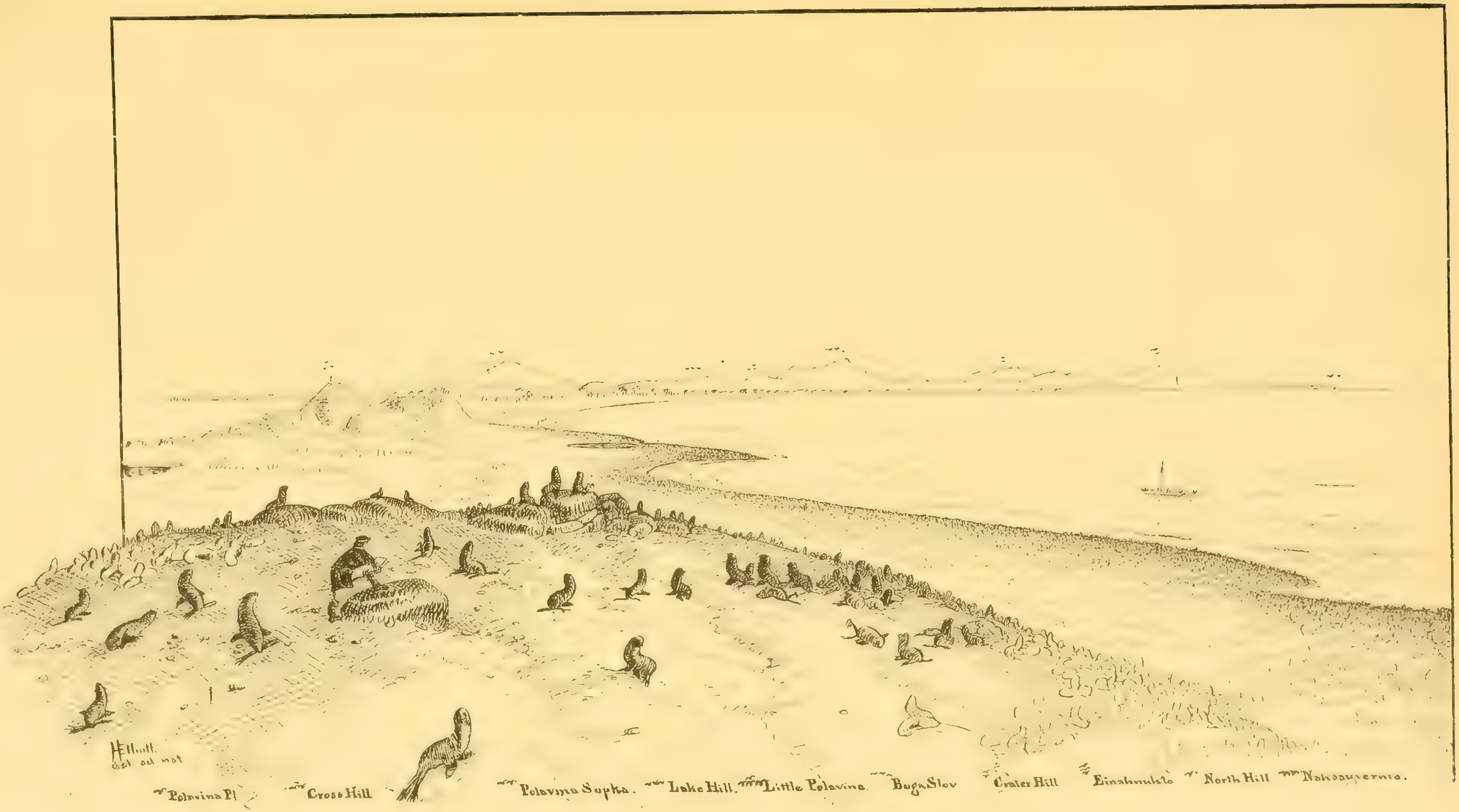
Drawing by H. W. Elliott


H Elliott
The "Kwutniko," club Knife, etc of the Native Sealer
Costumes of the People Pribylov Group.
His Wife and Child

THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

Ordinary attire of men on the killing ground and of women and young children in the village. (Sect. v, vol. ii, p. 320.)

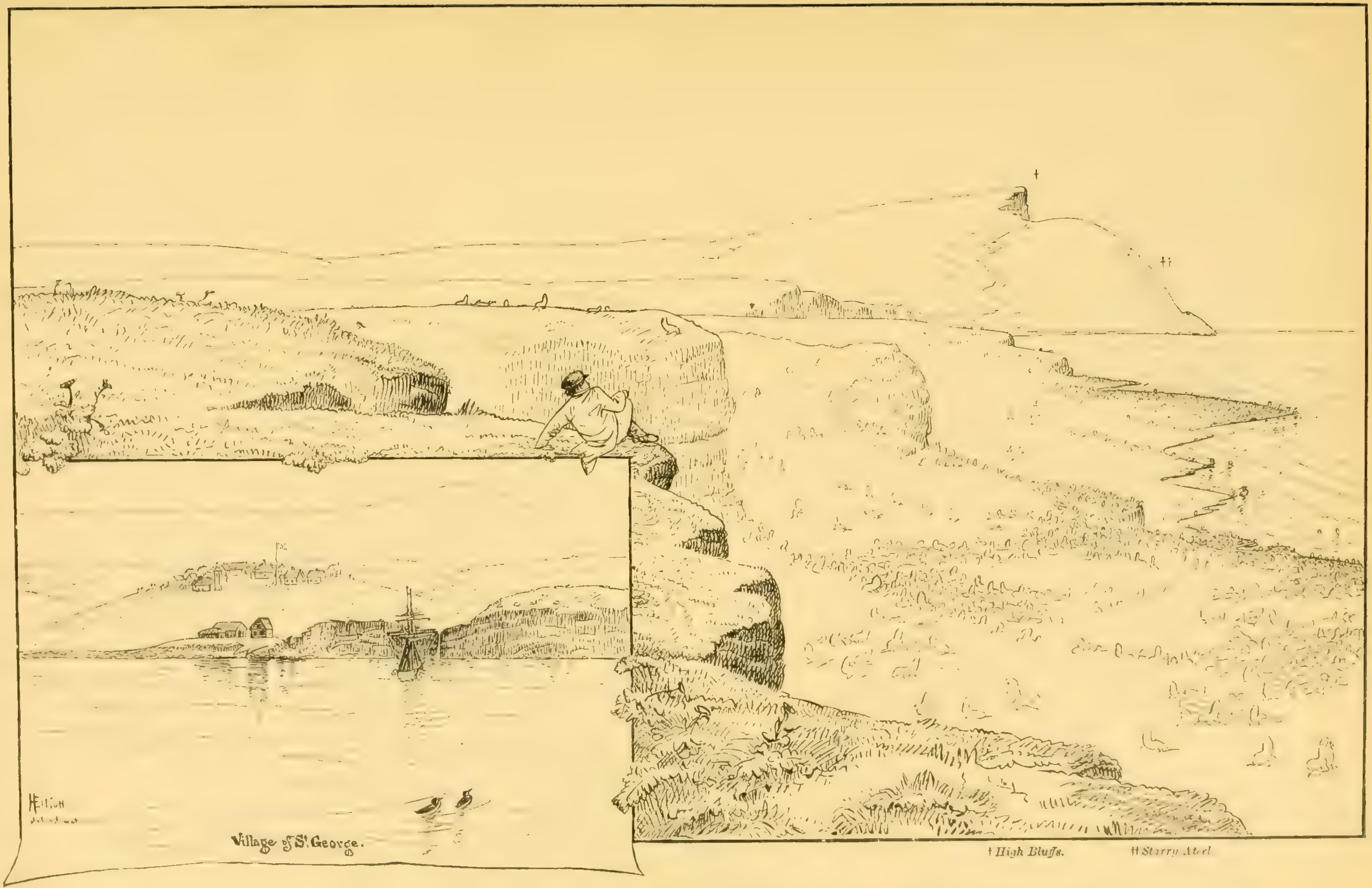
Drawing by H. W. Elliott.



THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

The north shore of Paul's Island, view looking W.SW. from the summit of Hutchinson's Hill. (Sect. v, vol. ii, p. 336.)

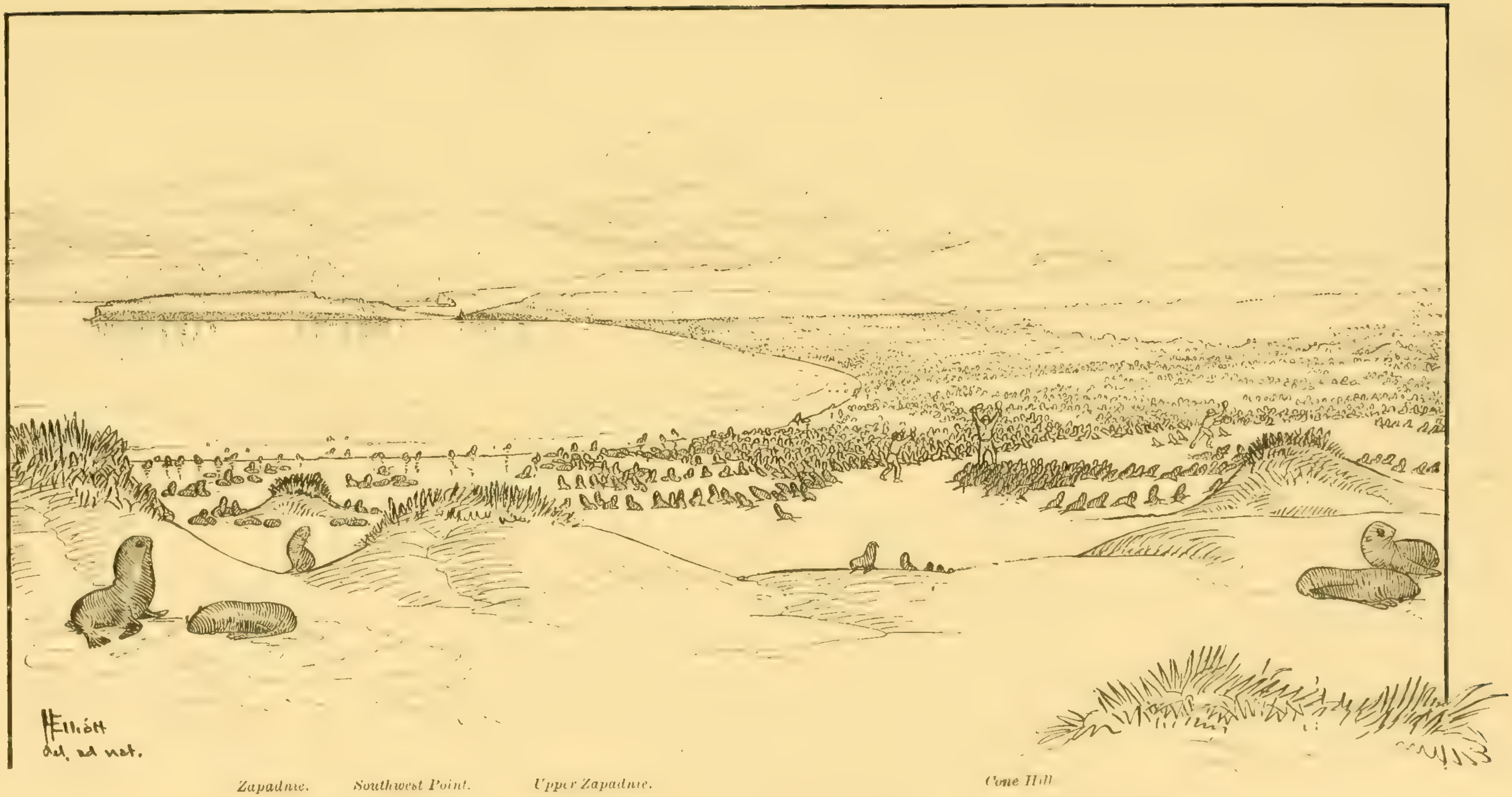
Drawing by H. W. Elliott.


H Elliott
Village of St George.
† High Bluffs.
†† Starry Ateel

THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

Viewing the North Rookery, looking west to Starry Ateel, St. George Island. (Sect. v, vol. ii, p. 348.)

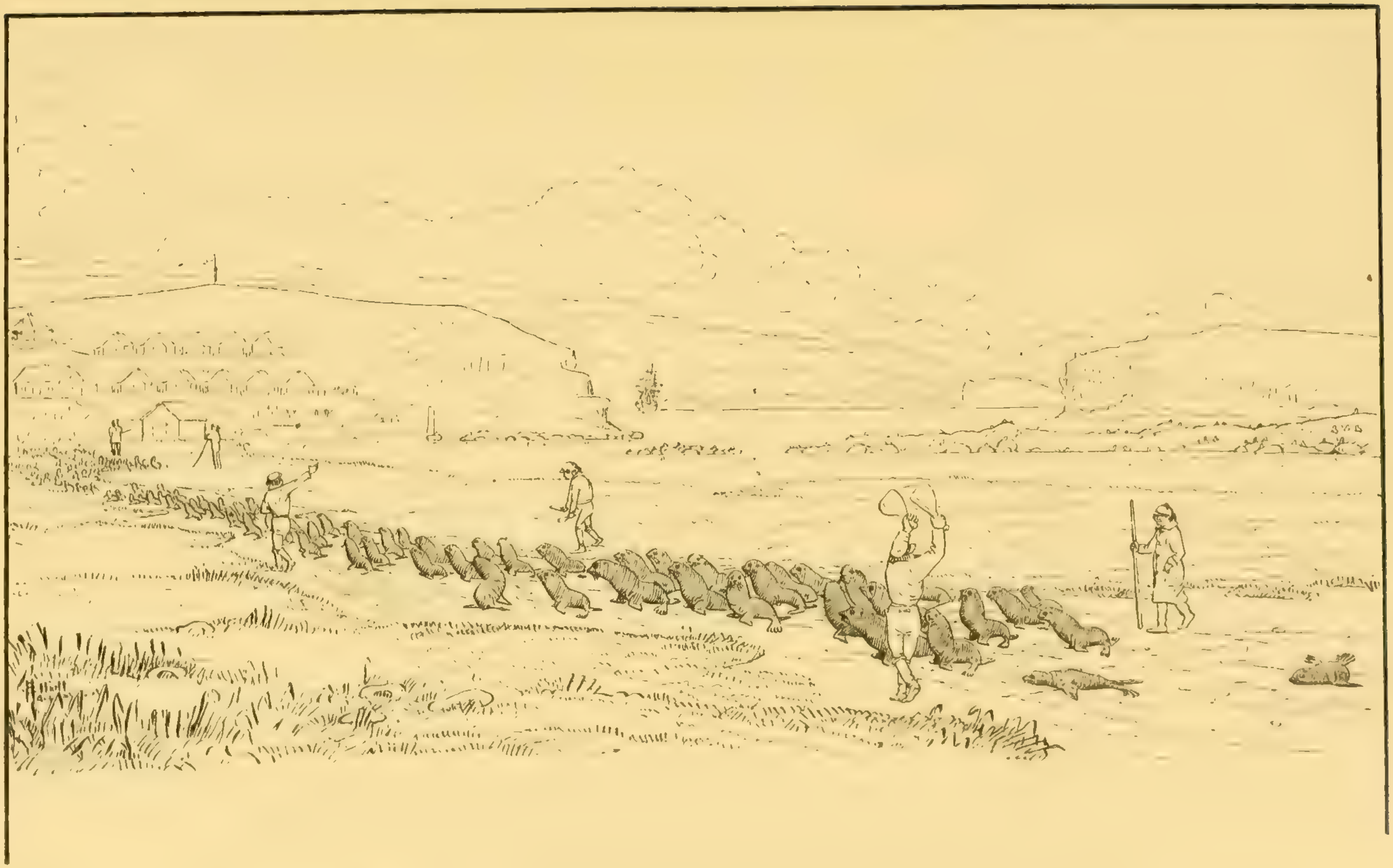
Drawing by H. W. Elliott.


H Elliott
del. ad nat.
Zapadnie.
Southwest Point.
Upper Zapadnie.
Cone Hill

THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

Natives selecting a drive; view over hauling-grounds of "holluschickie" at English Bay, looking west from Tolstoi sand dunes. (Sect. V, vol. ii, p. 363.)

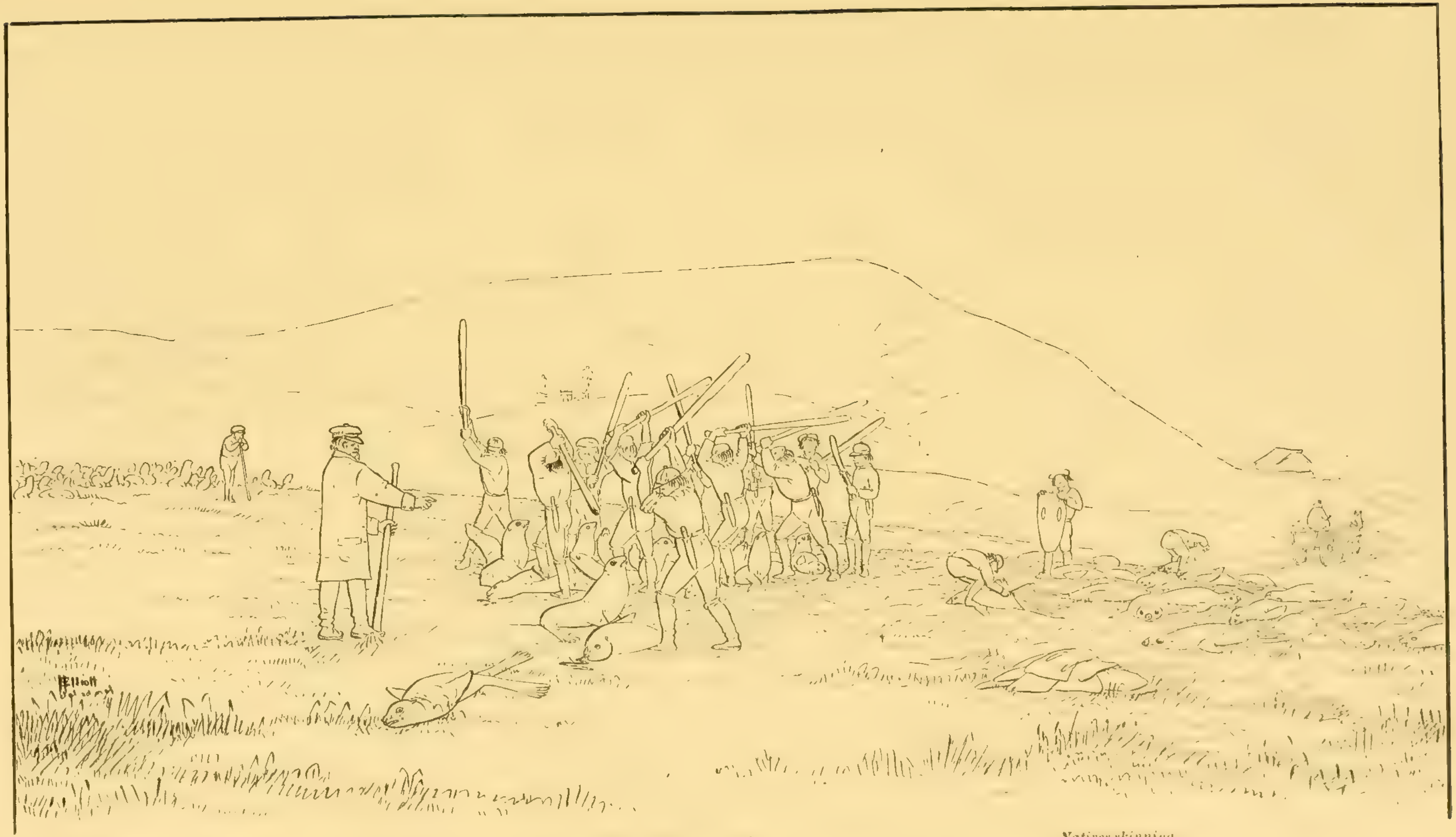
Drawing by H. W. Elliott.



THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

Natives driving the "holluschickie"; the drive passing over the lagoon flats to the killing-ground, under the village hill, St. Paul's Island.
(Sect. v, vol. ii, p. 363.)

Drawing by H. W. Elliott.



The drive in waiting. *Sealers knocking down a "pod."* *Natives skinning.*

THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

The killing-gang at work; method of slaughtering fur-seals on the grounds near the village, St. Paul's Island. (Sect. v. vol. ii, p. 365.)

Drawing by H. W. Elliott.

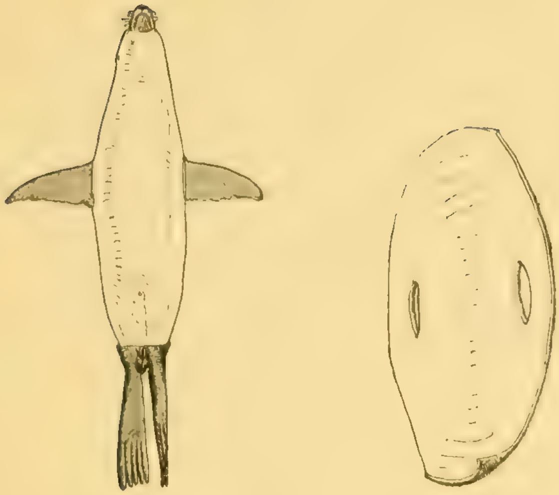


Fig. 2.

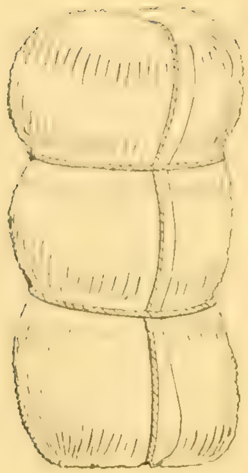


Fig. 3.

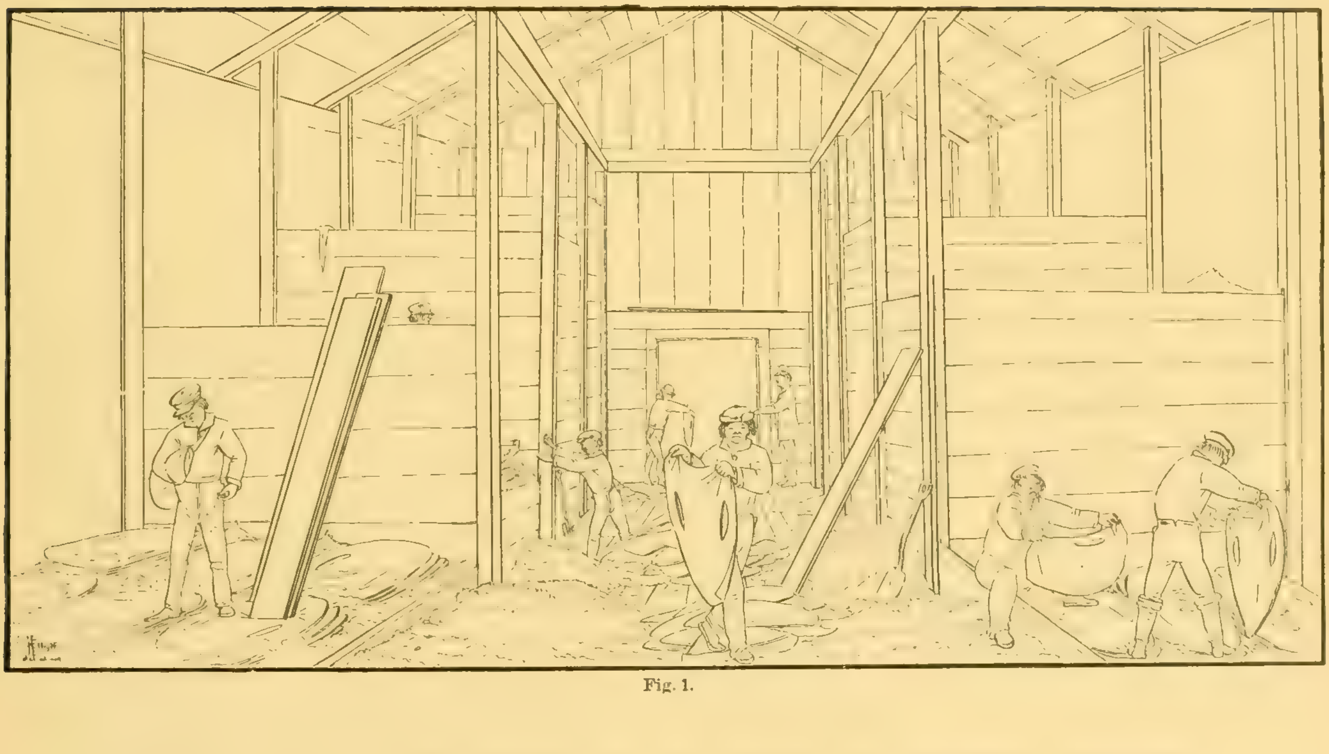


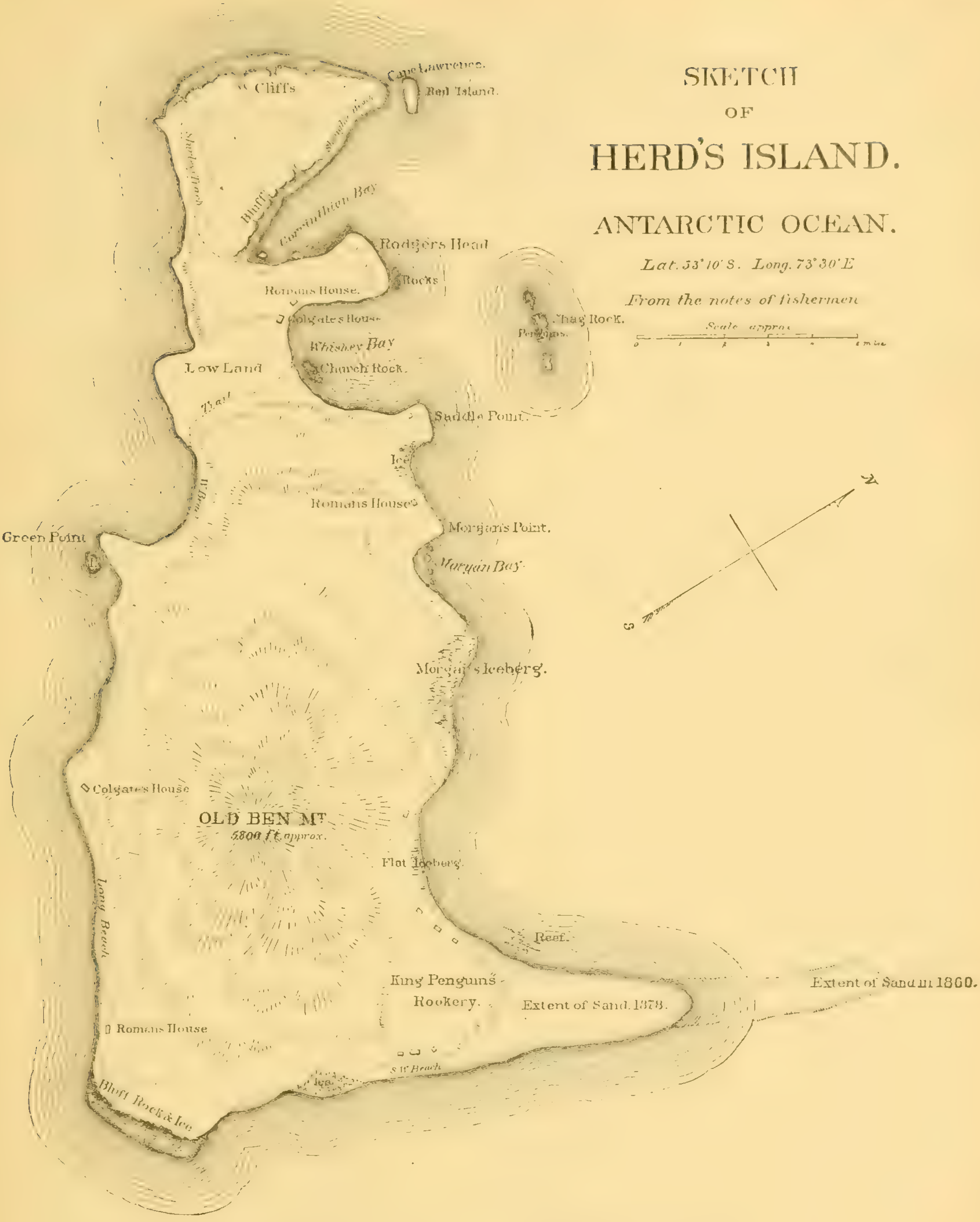
Fig. 1.

THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

Preparing the skins for shipment. (Sect. v, vol. ii, p. 369.)

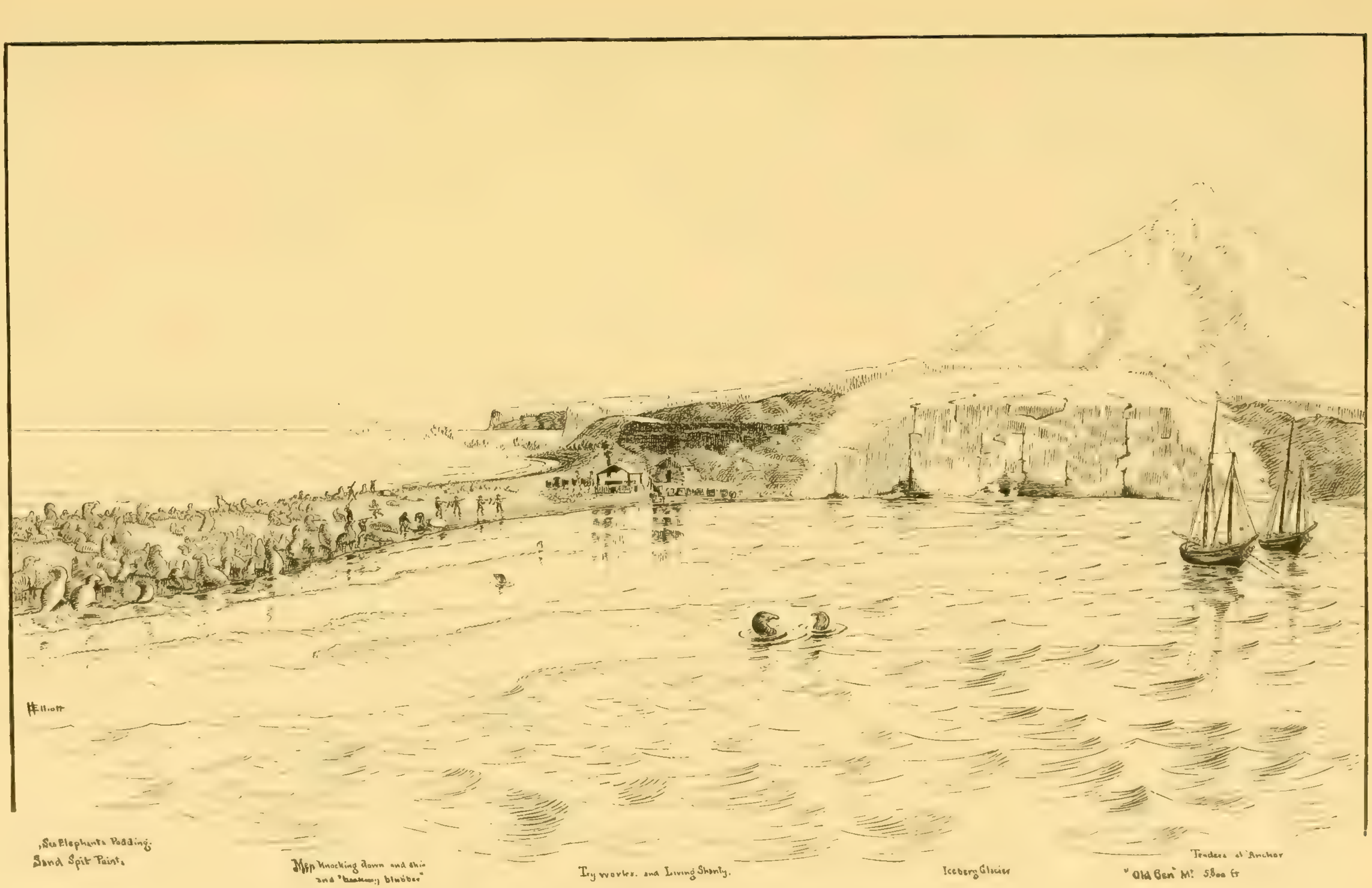
FIG. 1. Interior of salt-house, St. Paul's Island; natives salting and assorting the pelts.
FIG. 2. The flensed carcass of a fur-seal and the skin as taken therefrom.
FIG. 3. A bundle of skins ready for shipment.

Drawings by H. W. Elliott.



THE ANTARCTIC SEA-ELEPHANT FISHERY.

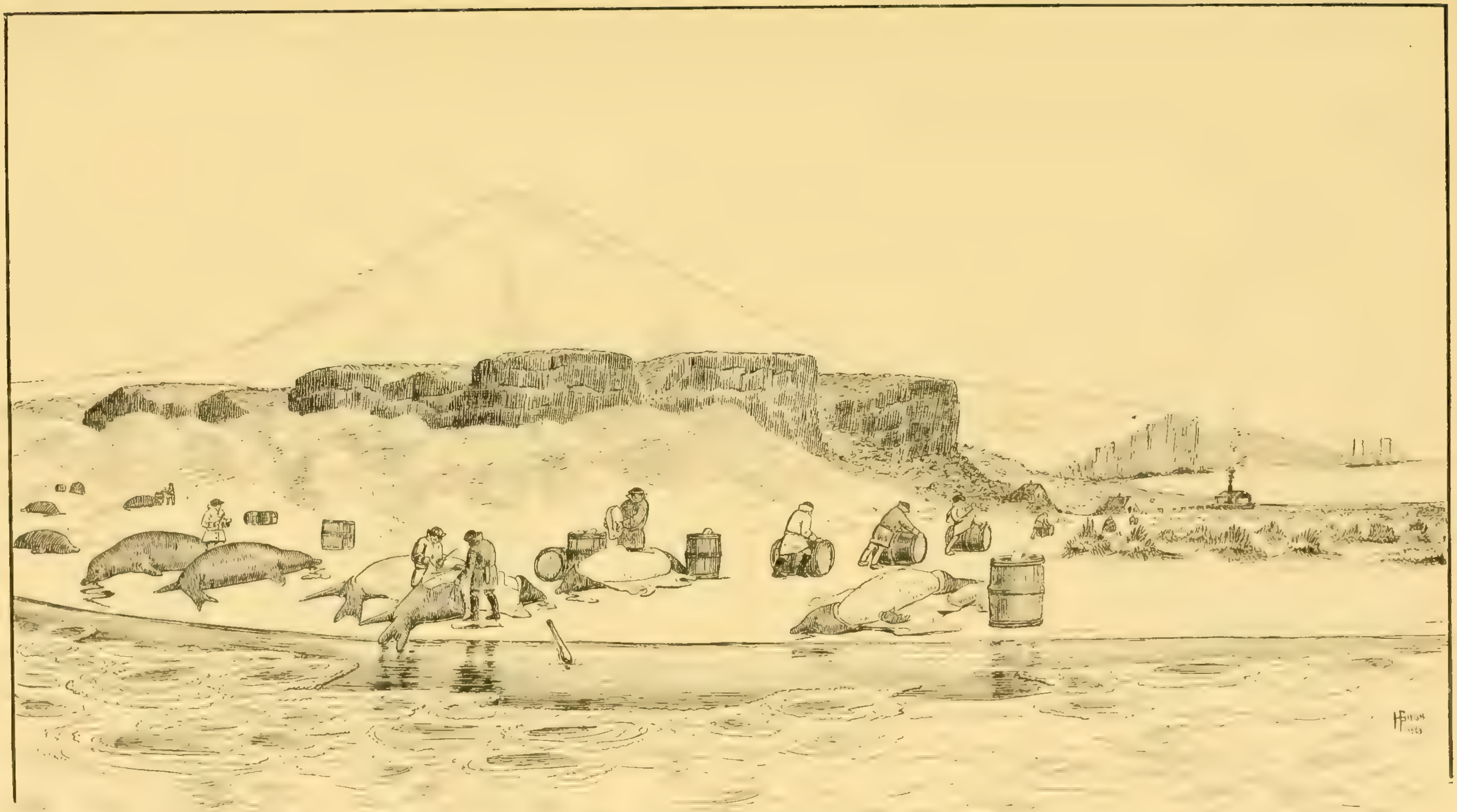
(Sect. v, vol. ii, p. 419.)



THE ANTARCTIC SEA-ELEPHANT FISHERY.

Working sea-elephants at Northeast Point, Herd's Island. (Sect. v, vol. ii, pp. 419, 435.)

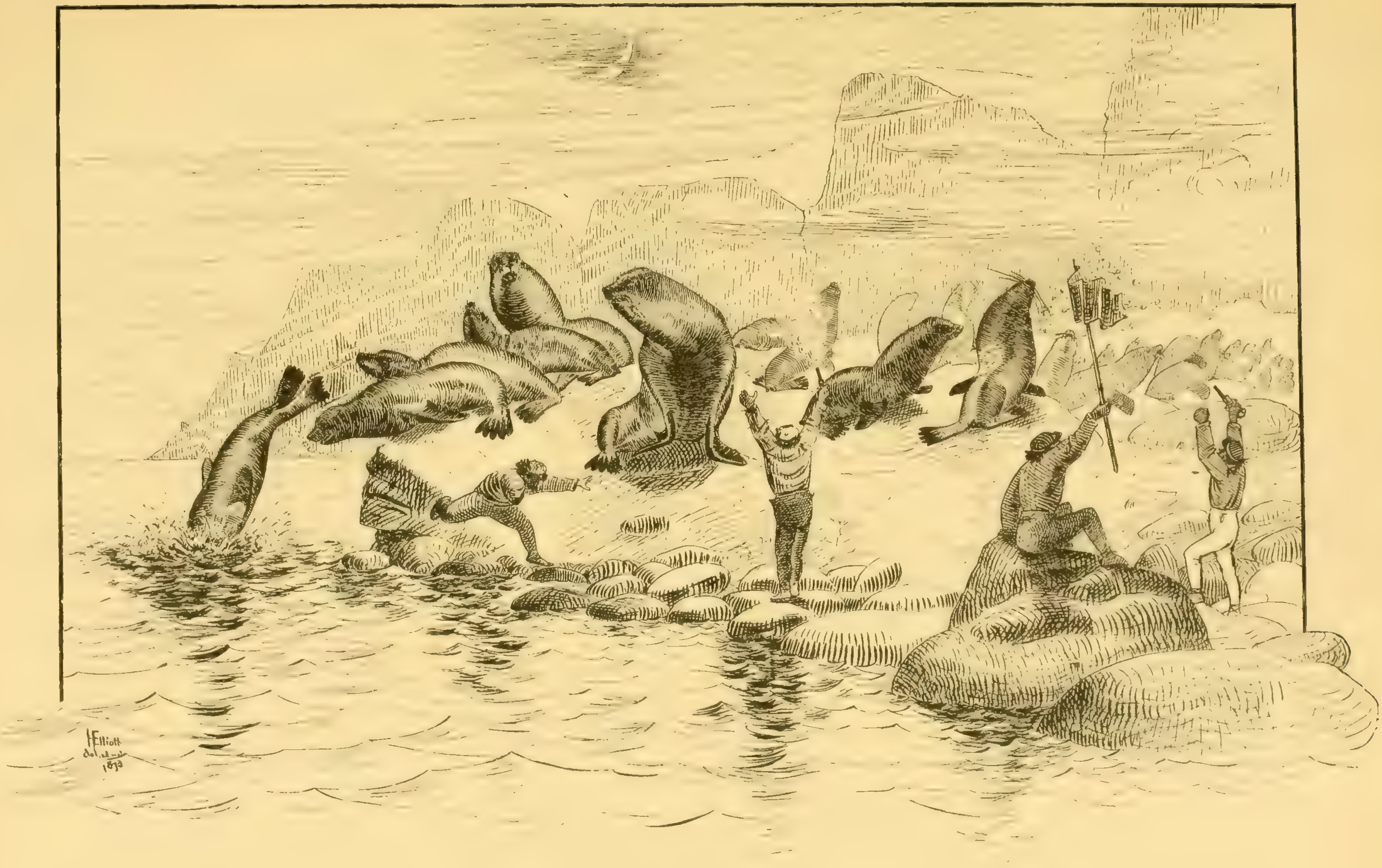
Drawing by H. W. Elliott, after Capt. H. C. Chester.



THE ANTARCTIC SEA-ELEPHANT FISHERY.

Stripping blubber and rolling it in barrels to try-works, Southwest Beach, Herd's Island. (Sect. v, vol. ii, pp. 419, 435.)

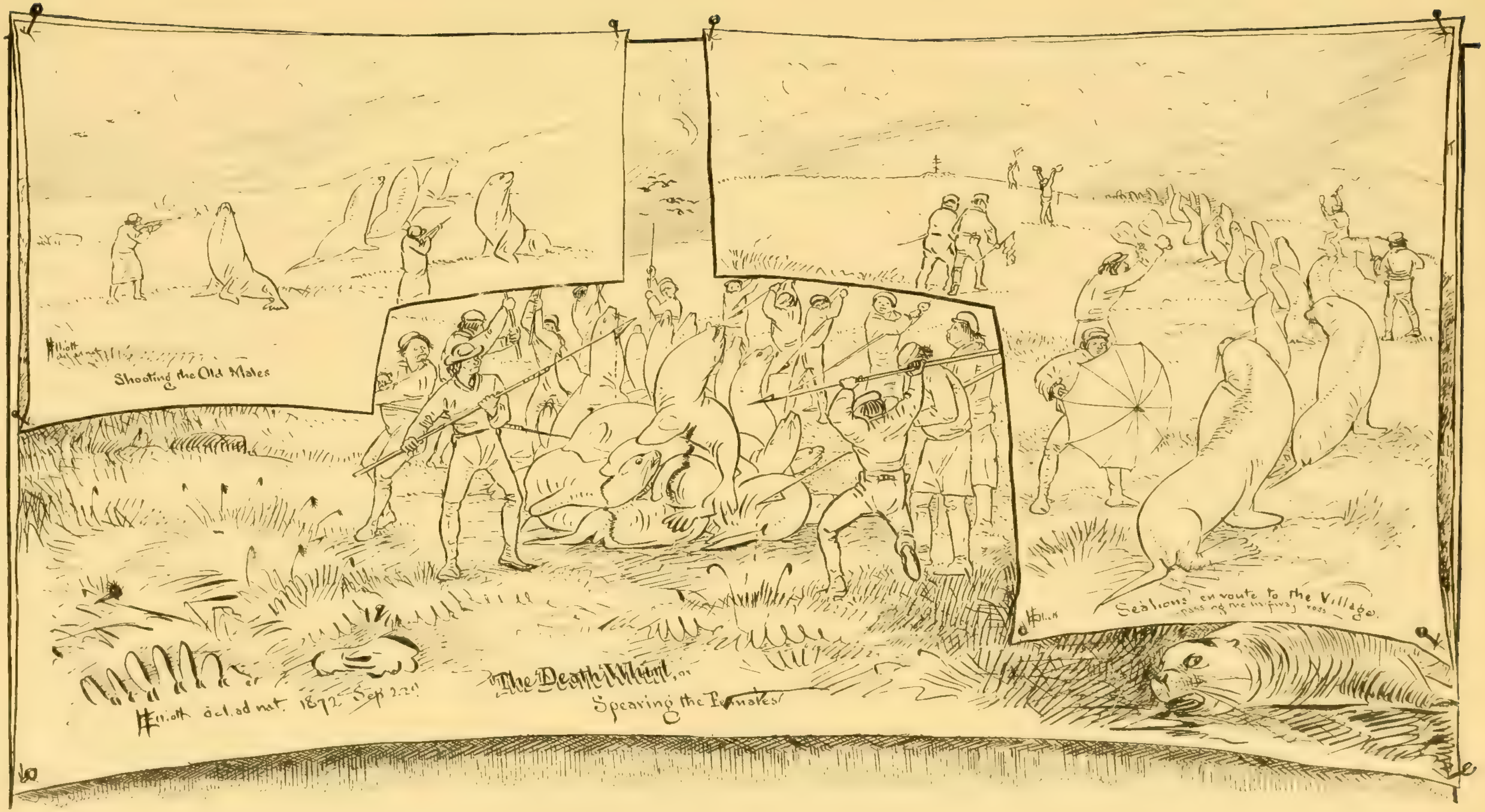
Drawing by H. W. Elliott, after Capt. H. C. Chester.



THE SEA-LION HUNT ON PRIBYLOV ISLANDS.

Natives capturing the sea-lion: springing the alarm. (Sect. v, vol. ii, p. 468.)

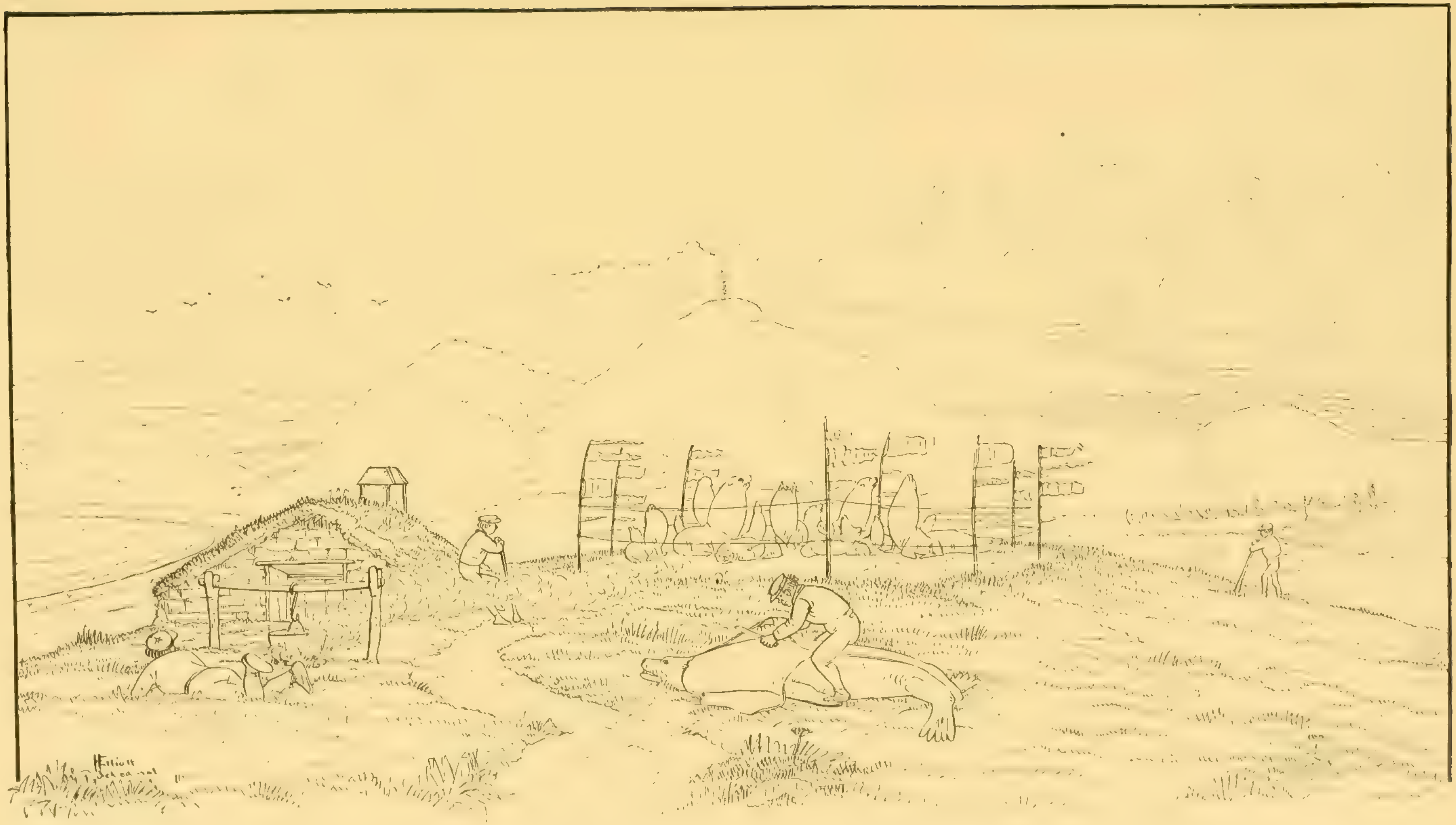
Drawing by H. W. Elliott.



THE SEA-LION HUNT ON PRIBYLOV ISLANDS.

Shooting the old males; spearing the surround; the drive. (Sect. v, vol. ii, pp. 468, 469, 471.)

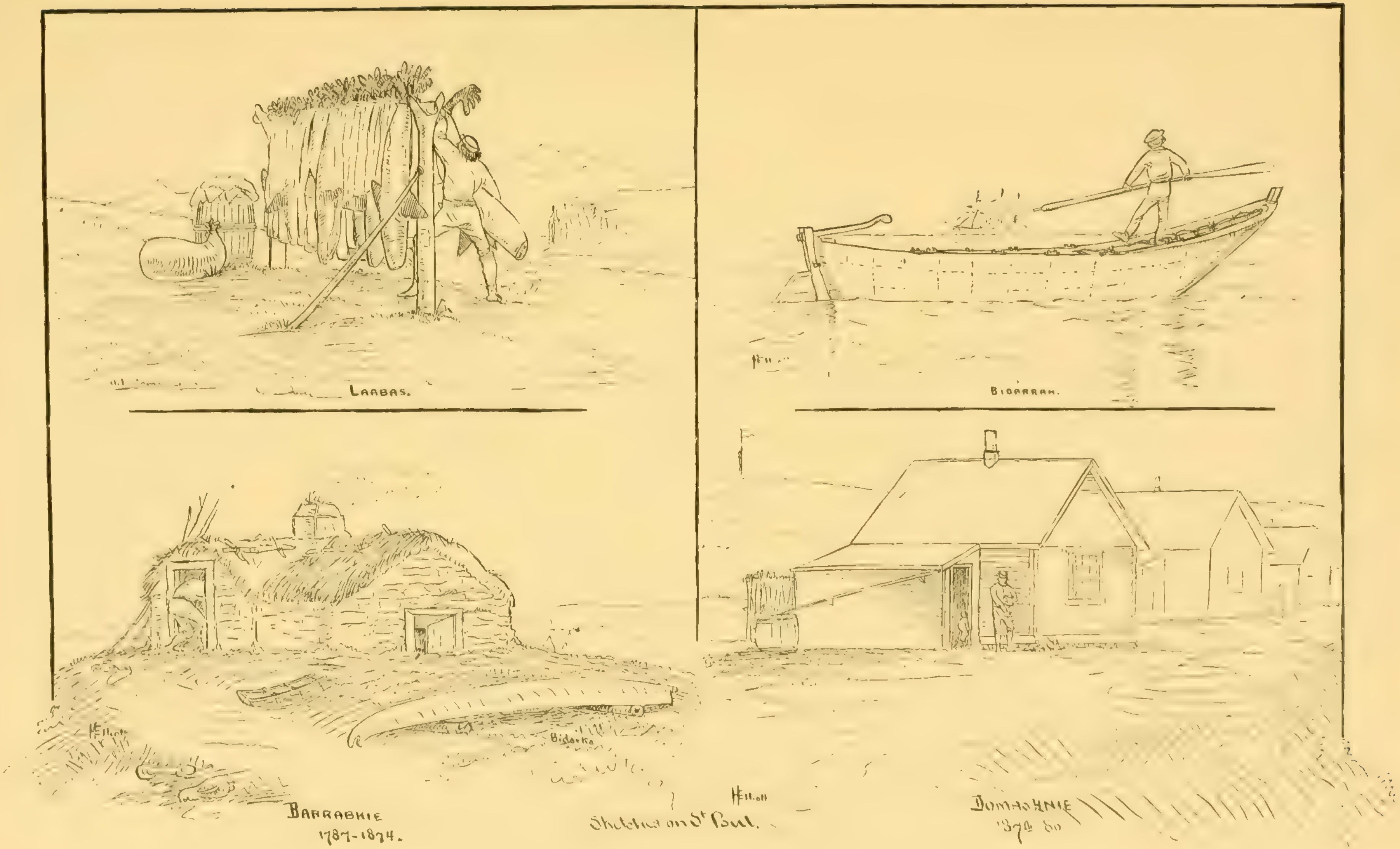
Drawing by H. W. Elliott.



THE SEA-LION HUNT ON PRIBYLOV ISLANDS.

The corral of sea-lions at the Barrabbora, under Cross Hill, Northeast Point, St. Paul's Island. (Sect. v, vol. ii, p. 469.)

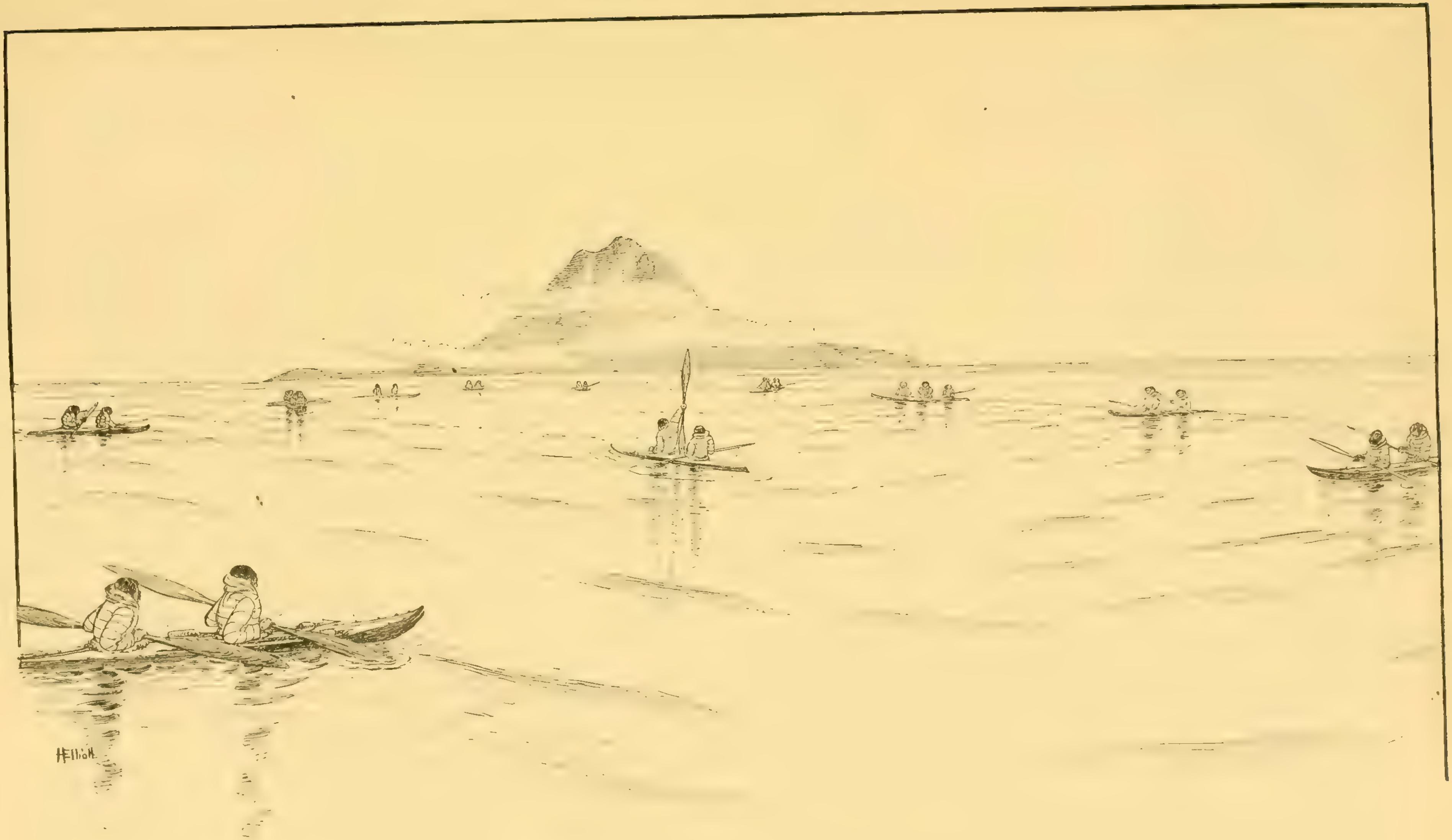
Drawing by H. W. Elliott.



THE SEA-LION HUNT ON PRIBYLOV ISLANDS.

Oil-pouch of sea-lion stomach; seal-meat frame; bidarrah covered with sea lion skins; sealers' houses. (Sect. v, vol. ii, pp. 471, 473.)

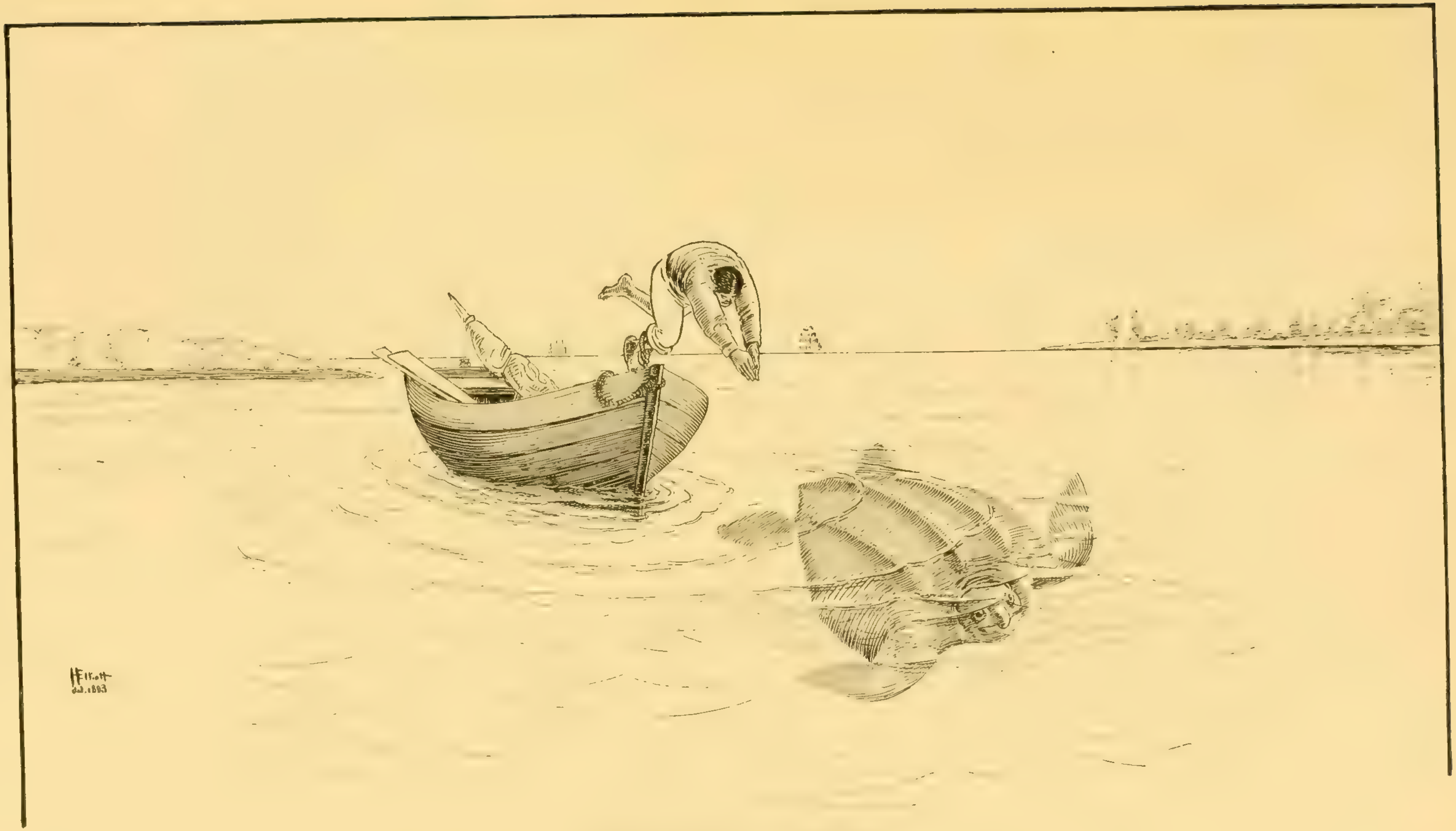
Drawing by H. W. Elliott.



THE SEA-OTTER FISHERY OF ALASKA.

Aluets sea-otter hunting south of Saanak Island; the bidarkas waiting for the otter to rise again. (Sect. v, vol. ii, p. 490.)

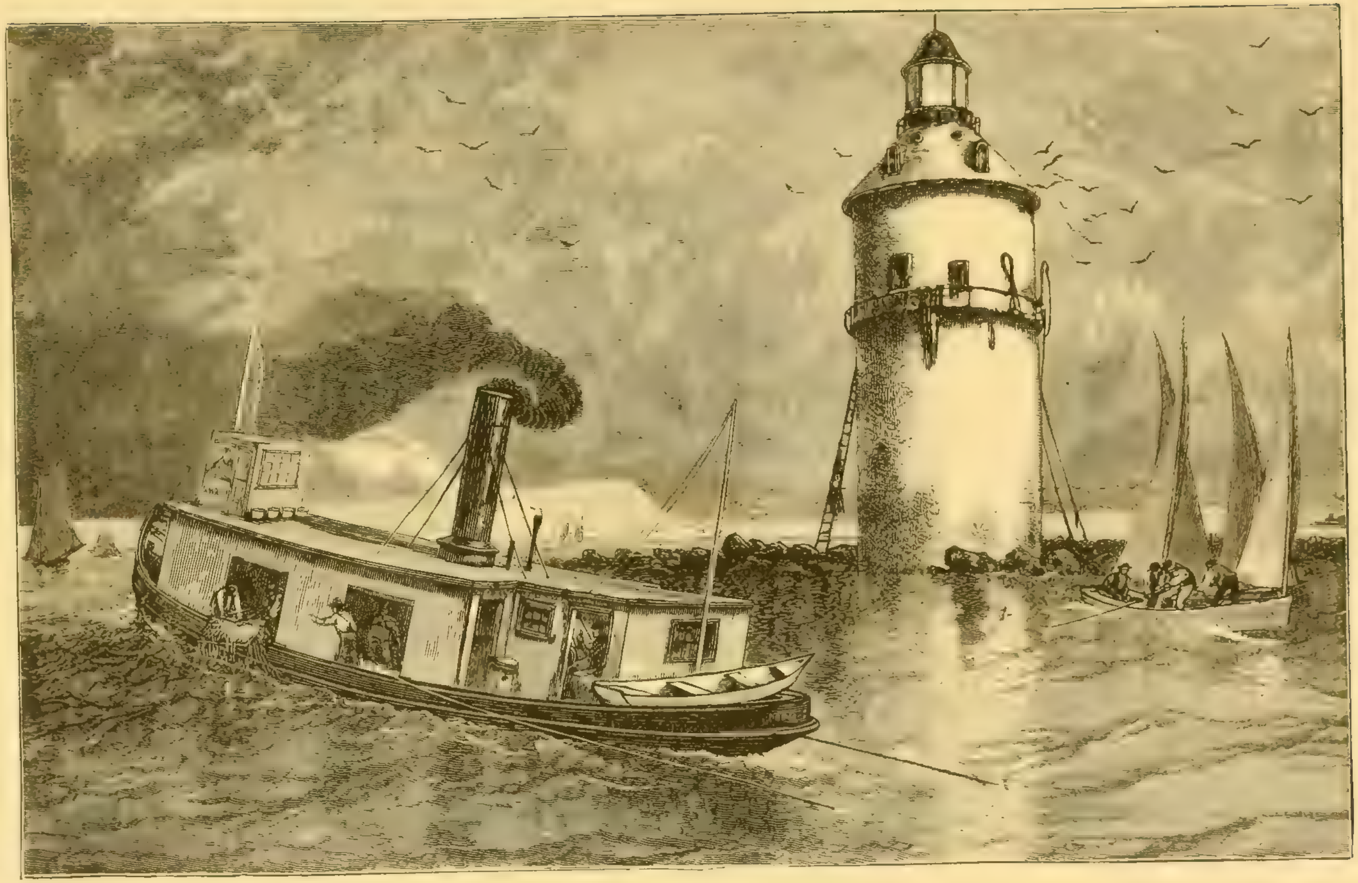
Drawing by H. W. Elliott.



THE TURTLE FISHERY.

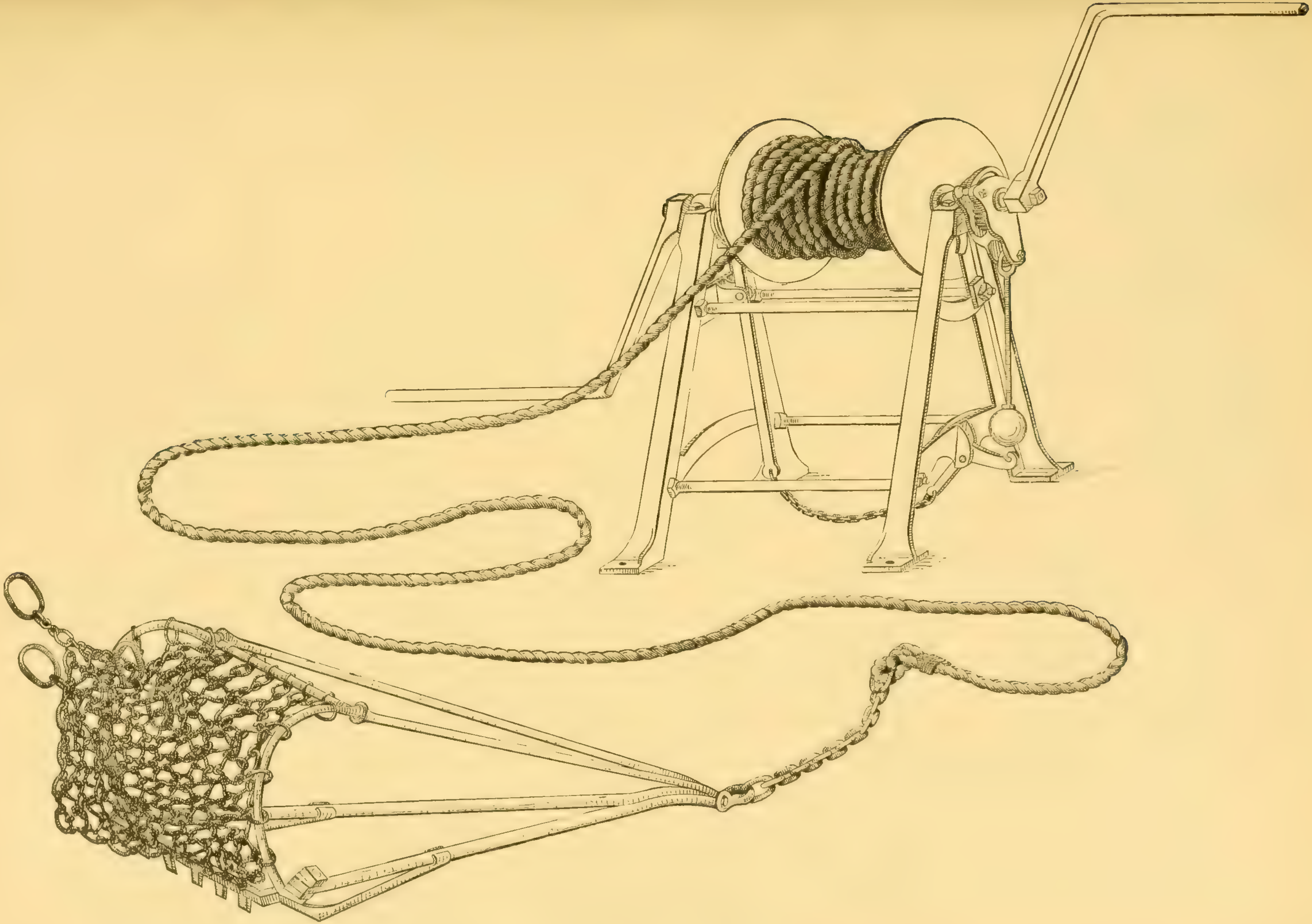
Diving for loggerhead turtle, Morehead City, North Carolina. (Sect. v, vol. ii, p. 495.)

Drawing by H. W. Elliott.



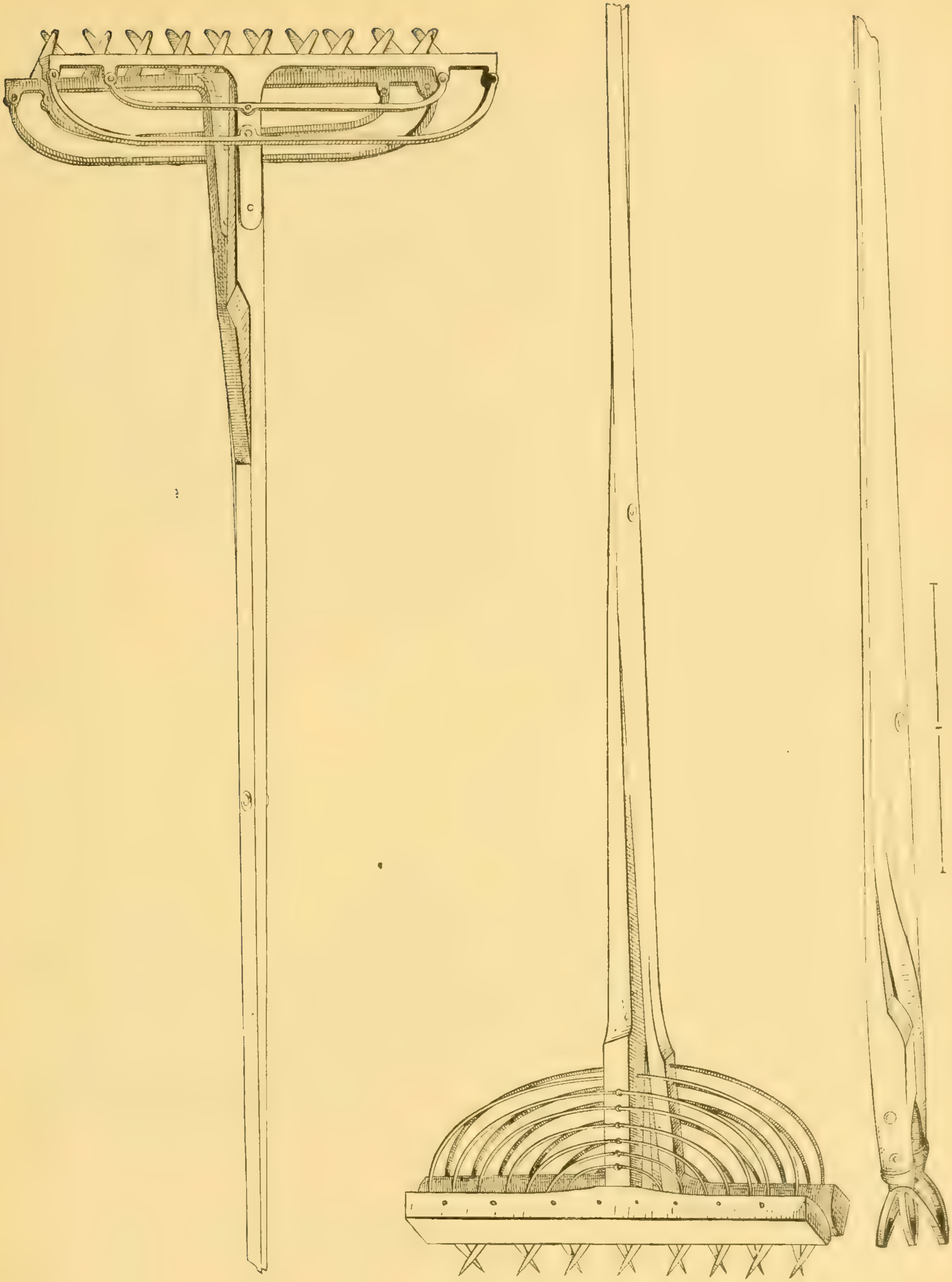
THE OYSTER INDUSTRY.

Oyster-dredging steamer at work in Long Island Sound. (Sect. v; vol. ii, pp. 523, 538.)



THE OYSTER INDUSTRY.

Chesapeake Bay oyster-dredge. (Sect. v, vol. ii, p. 523.)



THE OYSTER INDUSTRY.

Oyster tongs and nippers. (Sect. v, vol. ii, p. 551.)

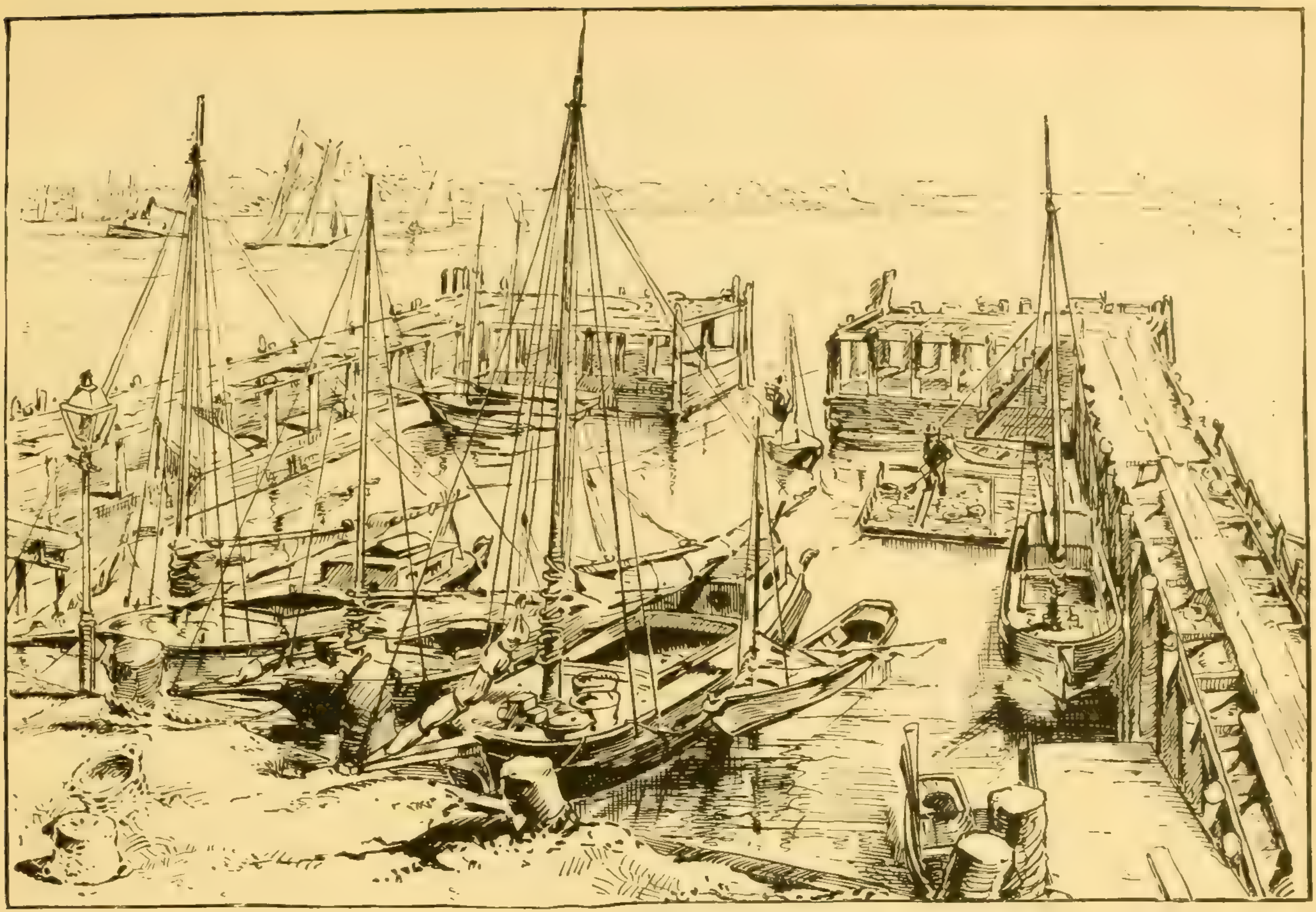


Fig. 1.

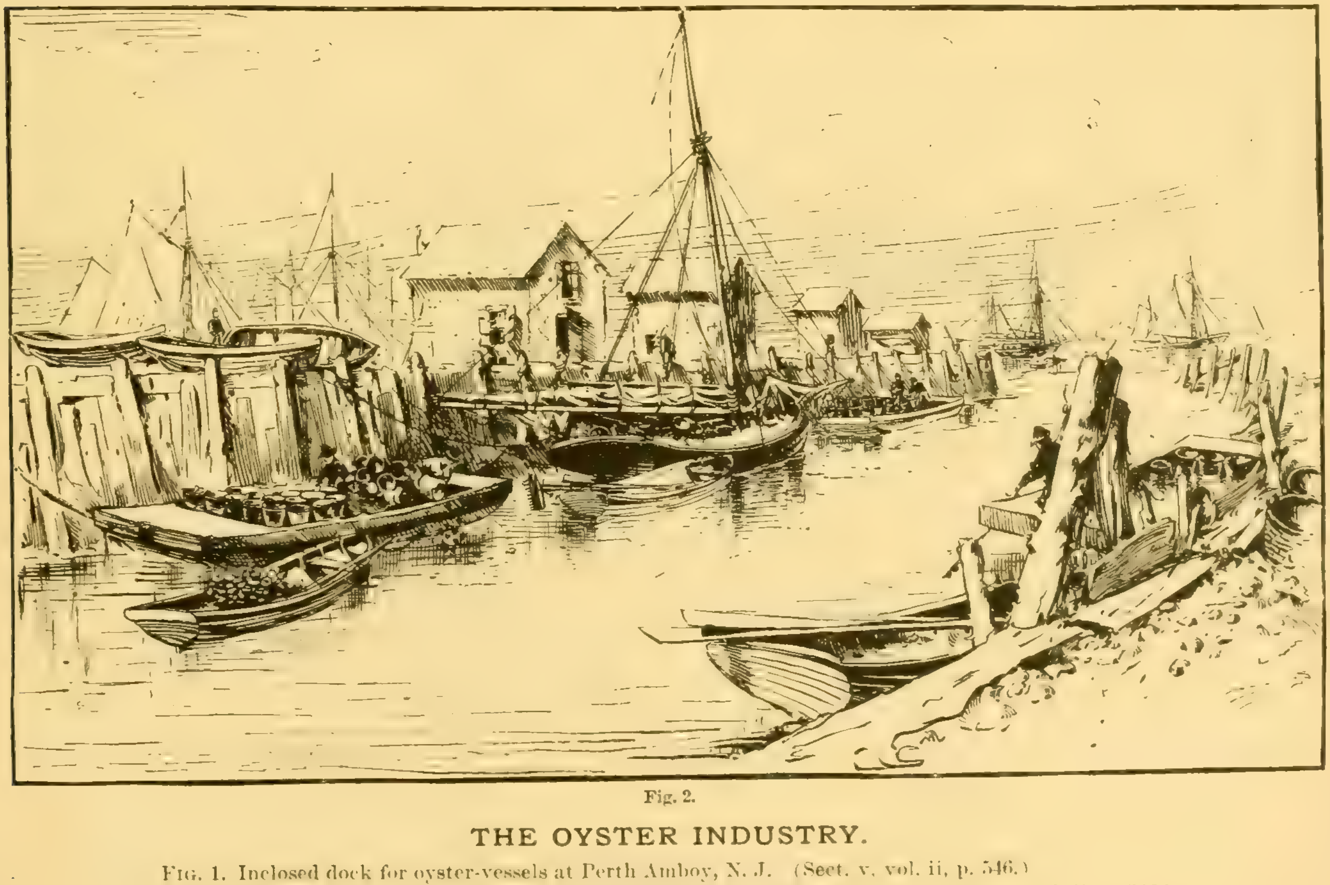


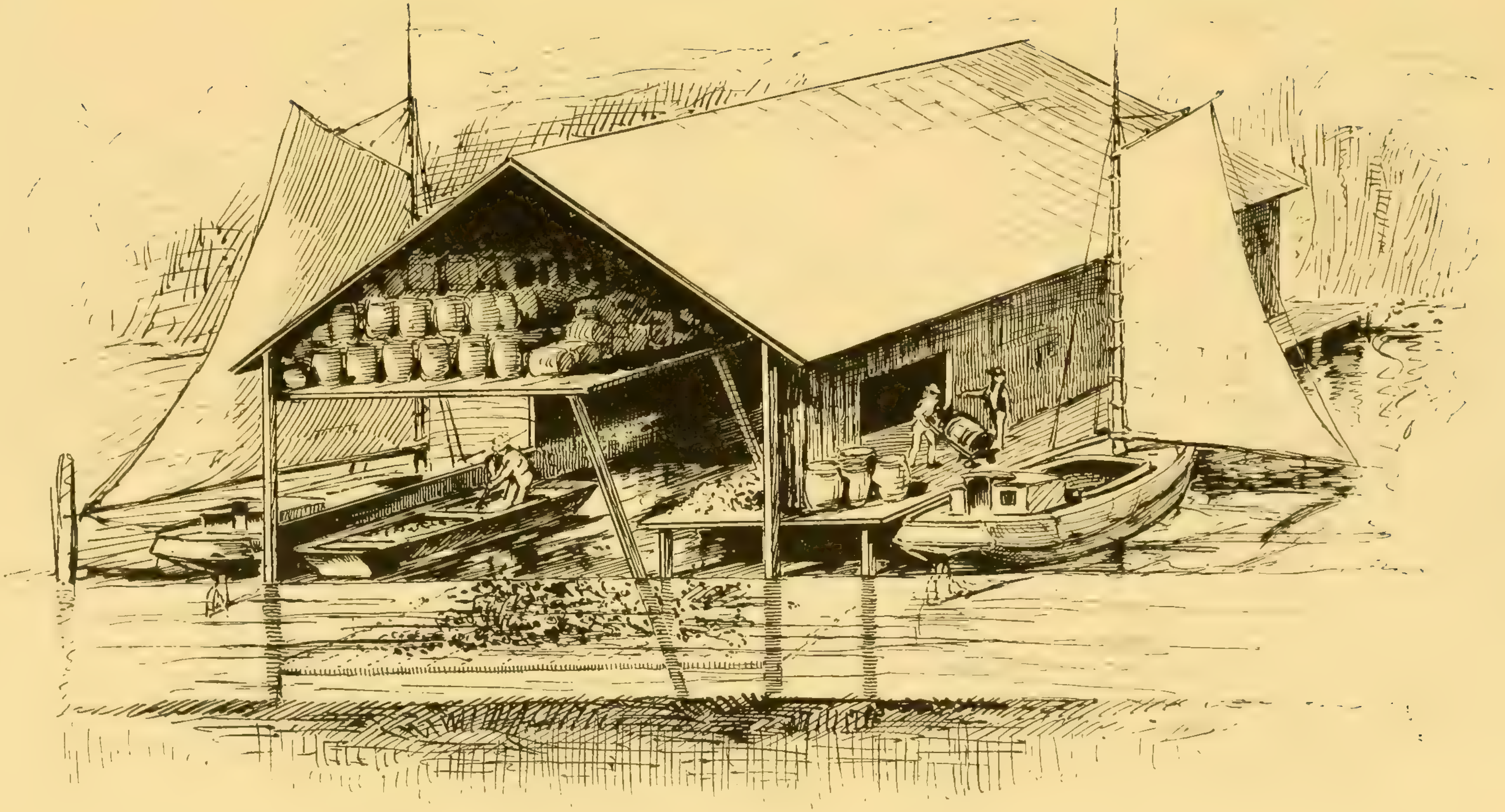
Fig. 2.

THE OYSTER INDUSTRY.

Fig. 1. Inclosed dock for oyster-vessels at Perth Amboy, N. J. (Sect. v, vol. ii, p. 546.)

Fig. 2. "The Creek" at Keyport, N. J., with oyster-boats, skiffs, and scows. (Sect. v, vol. ii, p. 546.)

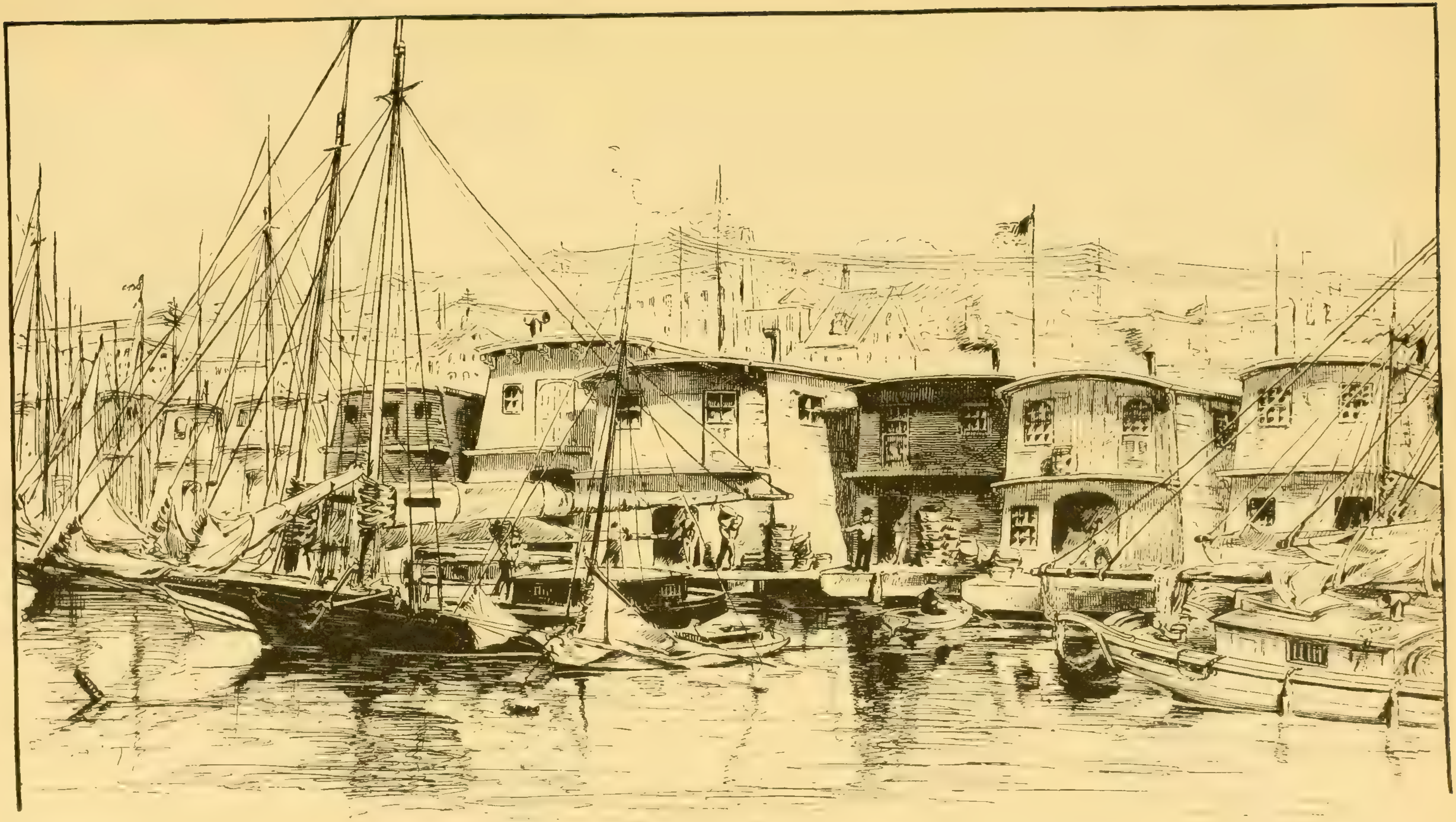
Drawings by Ernest Ingersoll.



THE OYSTER INDUSTRY.

A Lake's Bay shipping-house and "platform" for freshening oysters, Smith's Landing, Lake's Bay, New Jersey. (Sect. v, vol. ii, p. 546.)

Drawing by Ernest Ingersoll.



THE OYSTER INDUSTRY.

Oyster-barges at the foot of West Tenth street, North River, New York City. (Sect. v, vol. ii, p. 555.)

Drawing by Ernest Ingersoll.

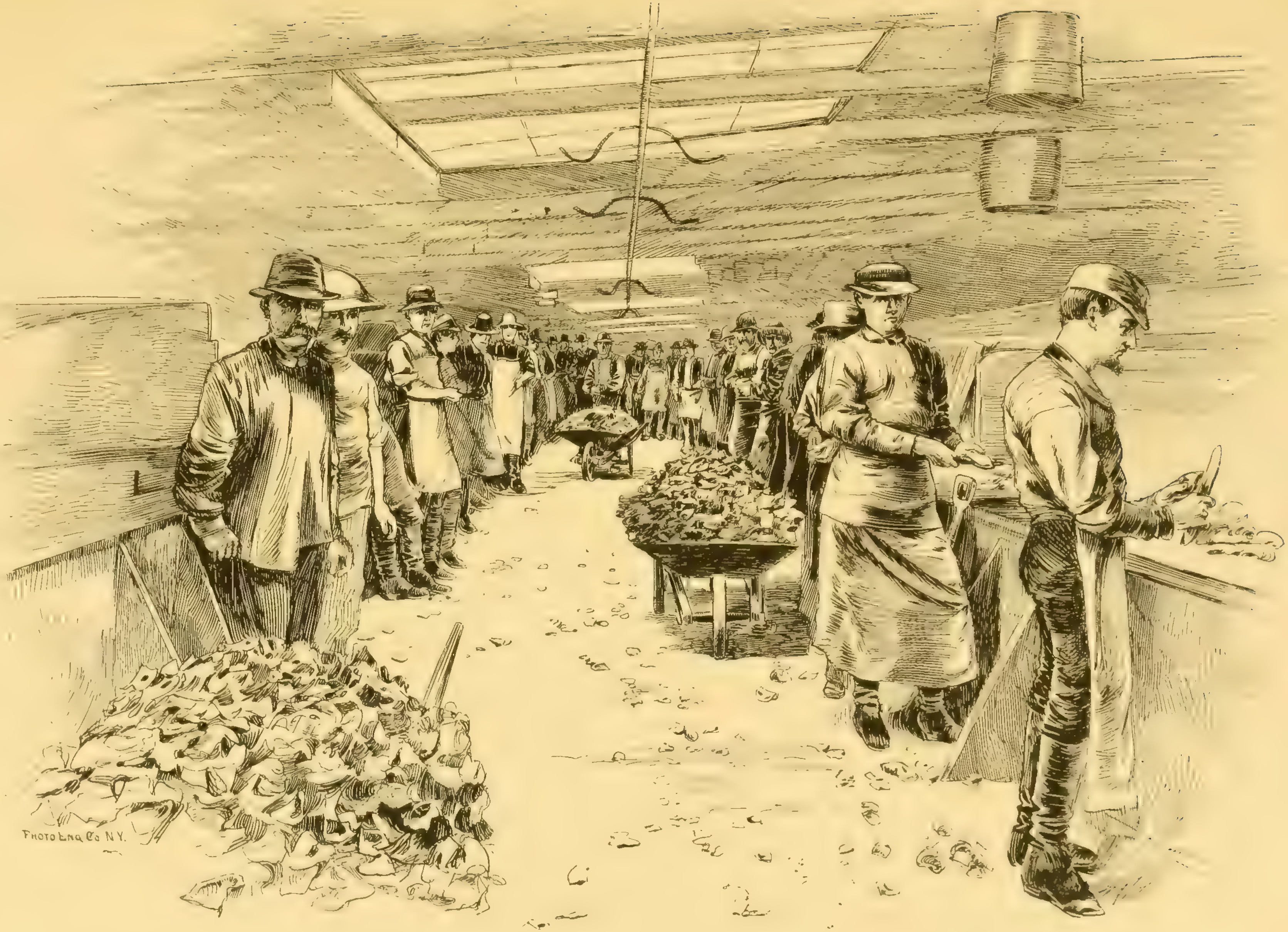
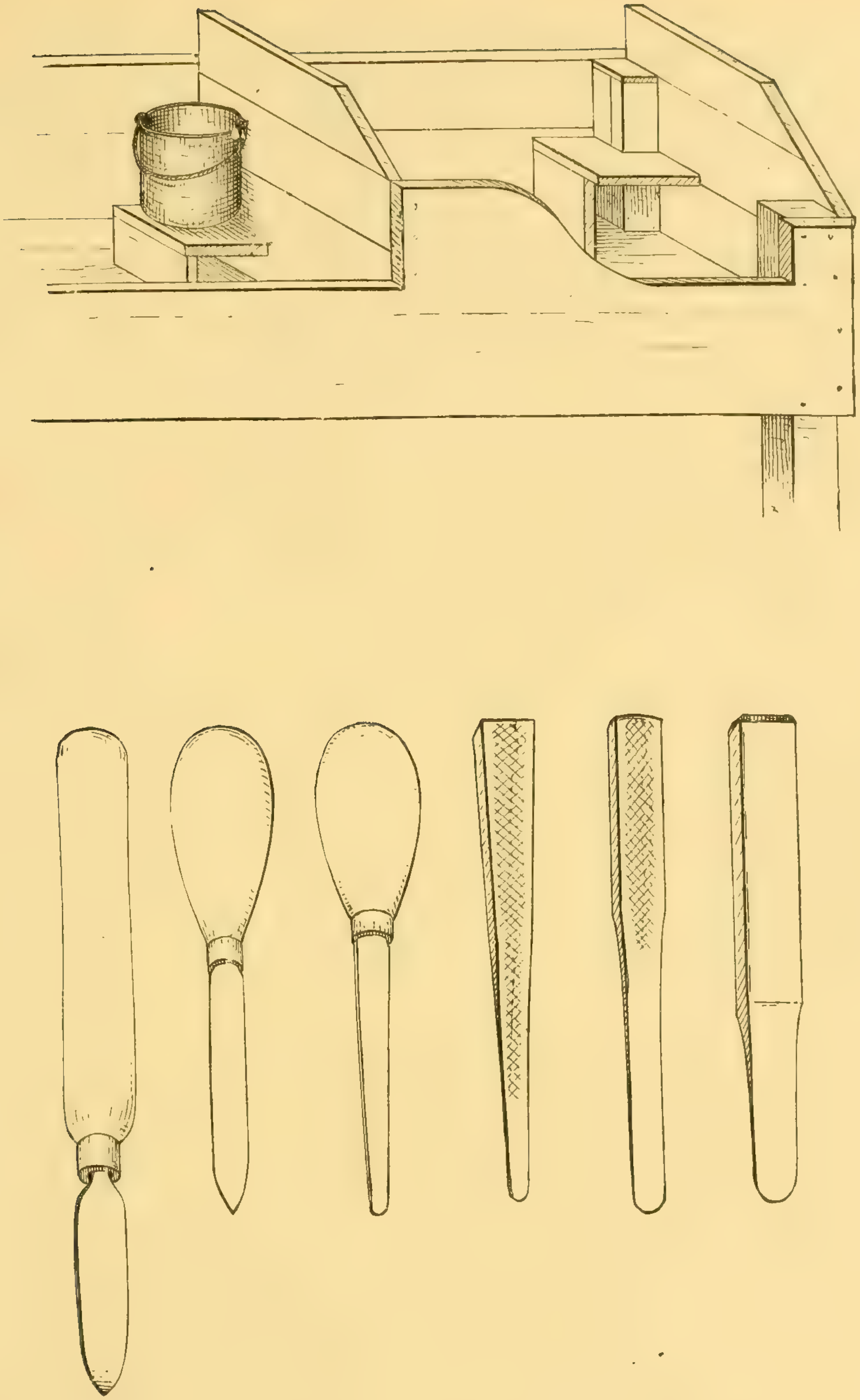


PHOTO ENG CO N.Y.

THE OYSTER INDUSTRY.

Opening or shucking oysters in a Baltimore packing-house. (Sect. v, vol. ii, p. 560.)

From a photograph.



THE OYSTER INDUSTRY.

Baltimore oyster-shucking trough; oyster-knives of diverse patterns, used in New England, New York, and the Chesapeake region. (Sect. v, vol. ii, p. 559.)

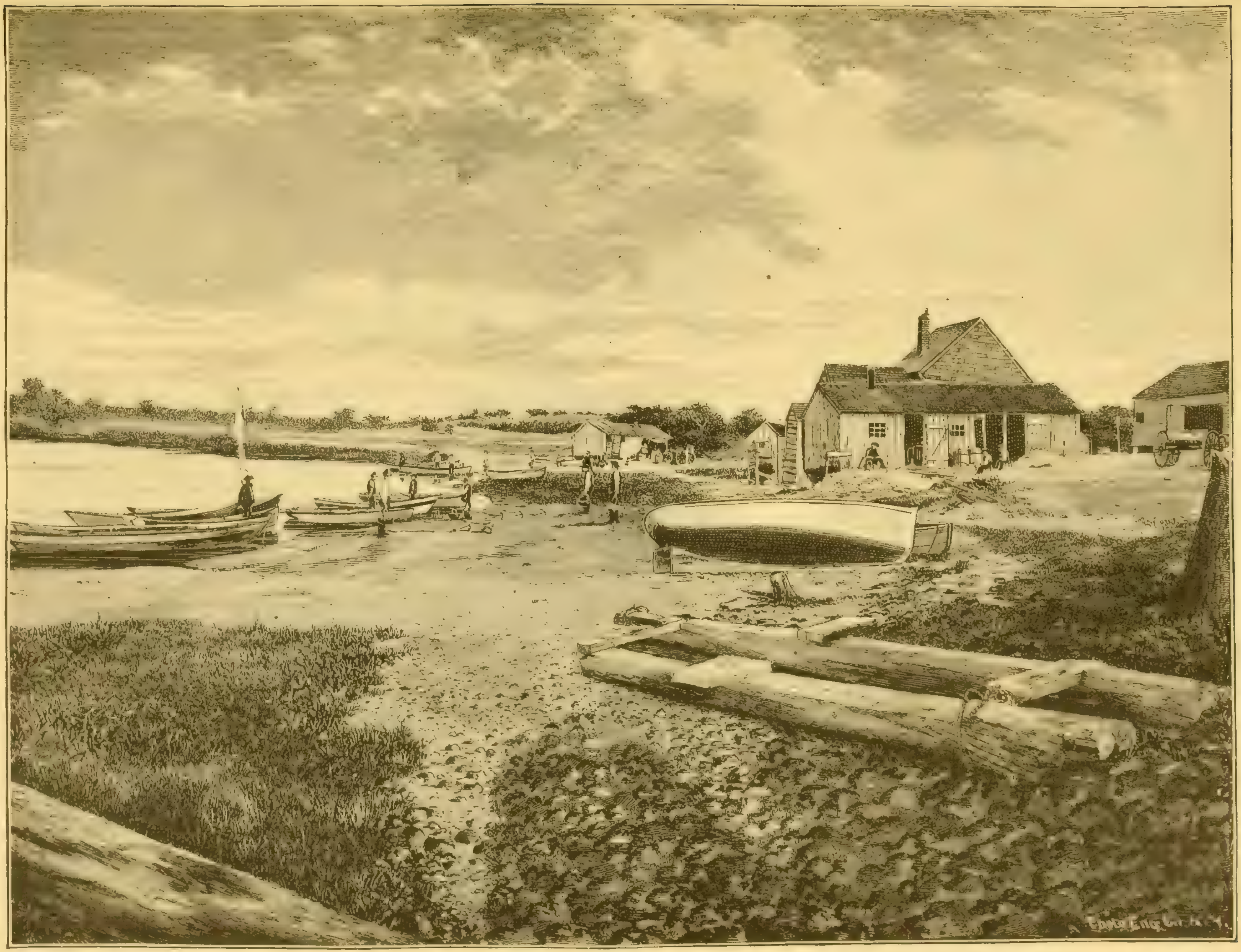
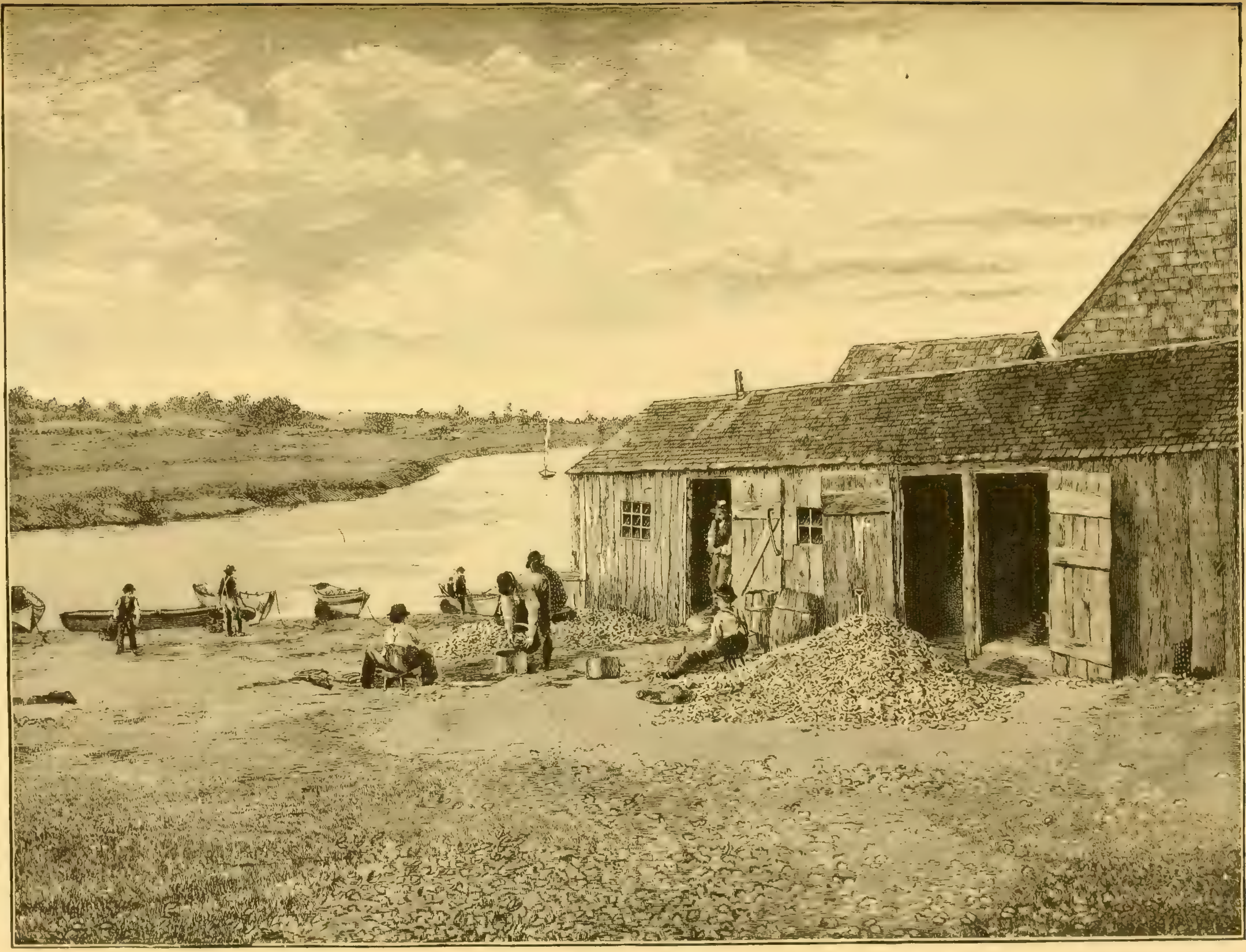


Photo.Eng.Co.N.Y.

THE CLAM INDUSTRY.

Clam-diggers' boats and shucking-houses at Essex, Mass. (Sect. v, vol. ii, p. 585.)

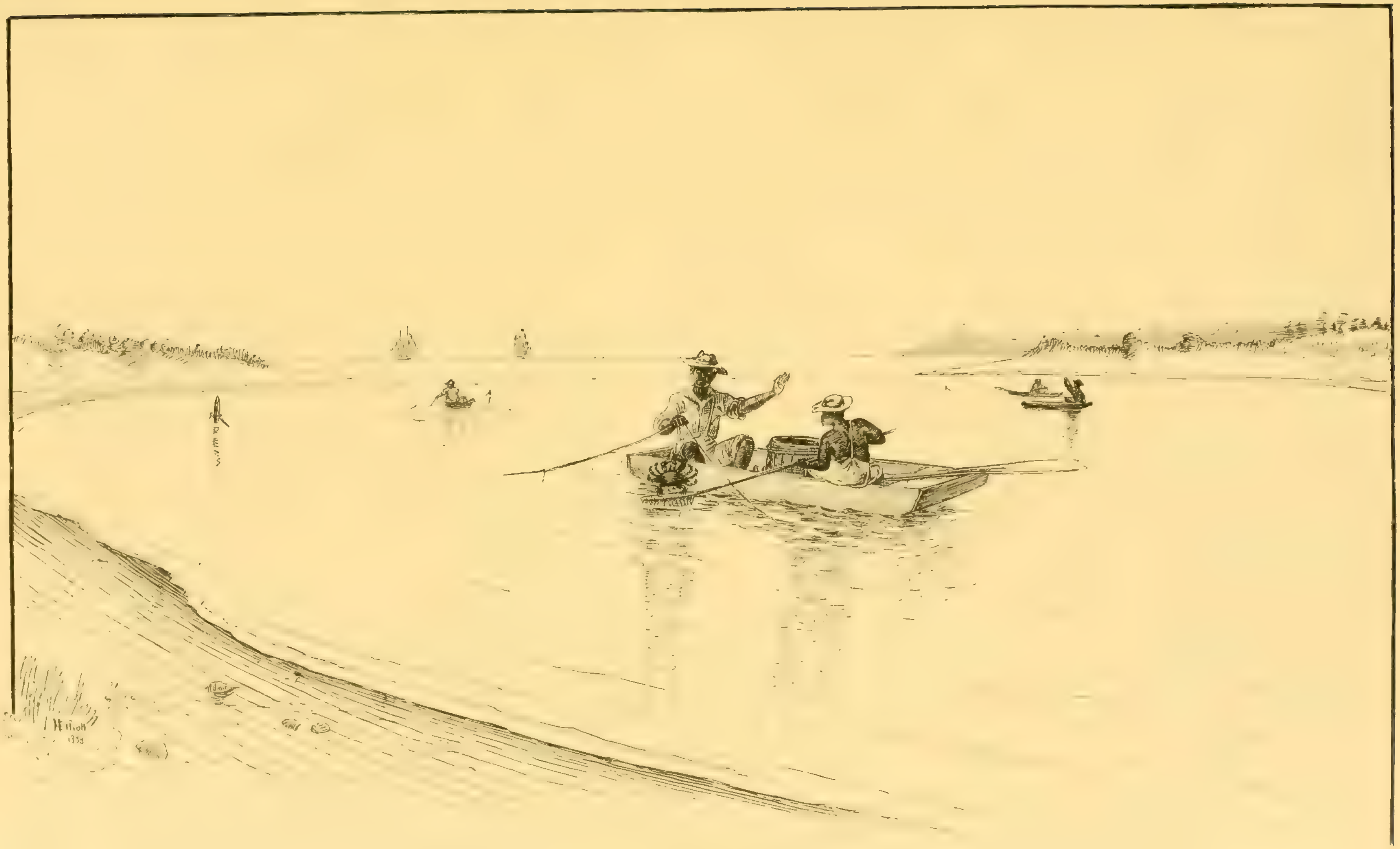
From a photograph by T. W. Smillie.



THE CLAM INDUSTRY.

Opening or shucking clams at Essex, Mass. (Sect. v, vol. ii, p. 585.)

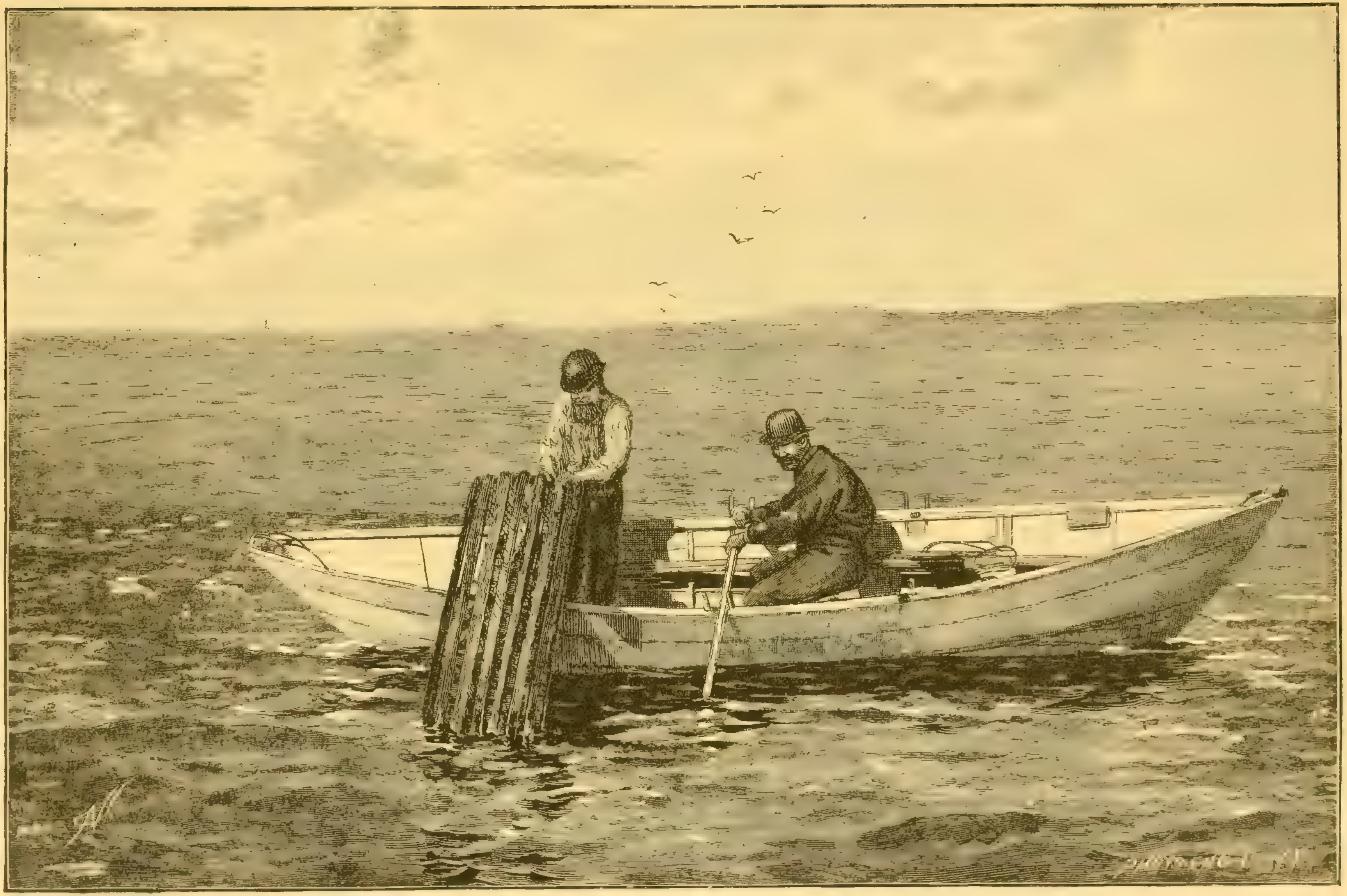
From a photograph by T. W. Smillie.



THE CRAB FISHERY.

Negroes trawling for crabs on the Virginia and North Carolina coasts. (Sect. v. vol. ii, p. 633.)

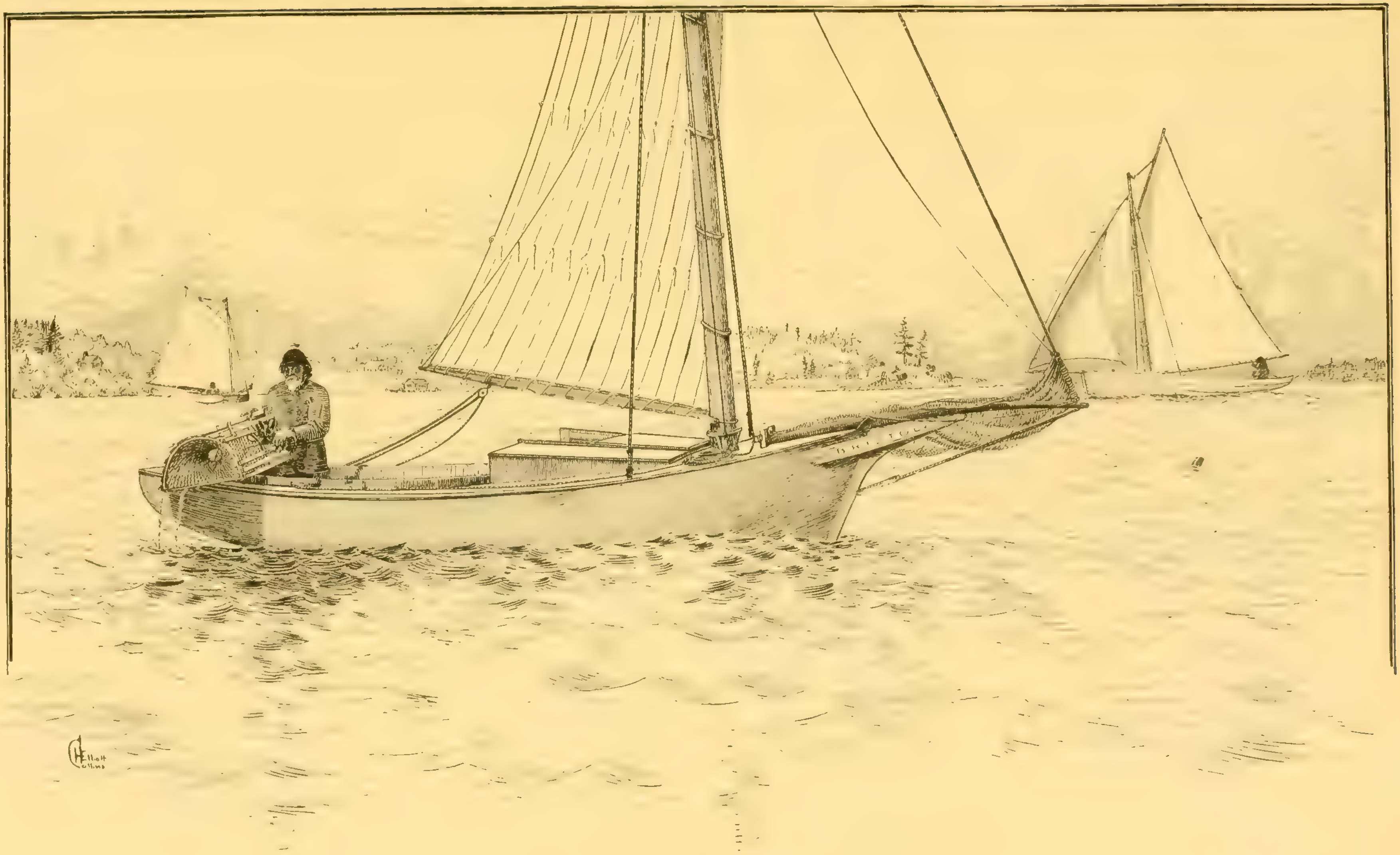
Drawing by H. W. Elliott



THE LOBSTER FISHERY.

Dory fishermen hauling lobster-pots off Cape Ann, Massachusetts. (Sect. v, vol. ii, pp. 666, 667. 773.)

From a photograph by T. W. Smillie.



THE LOBSTER FISHERY.

Lobster fishing-boats of Bristol, Me. (Sect. v, vol. ii, pp. 669, 677, 759.)

Drawing by H. W. Elliott and Capt. J. W. Collins.

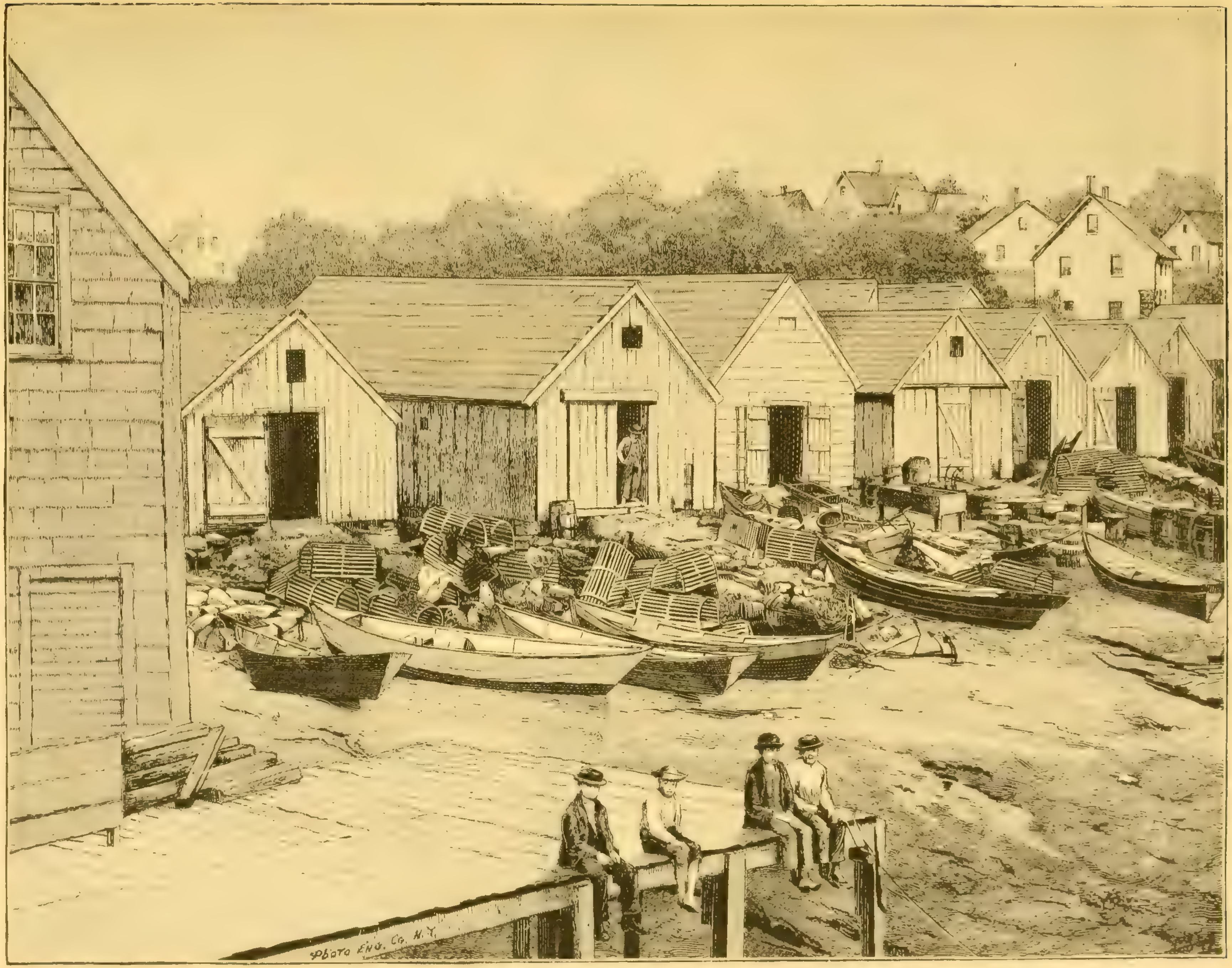
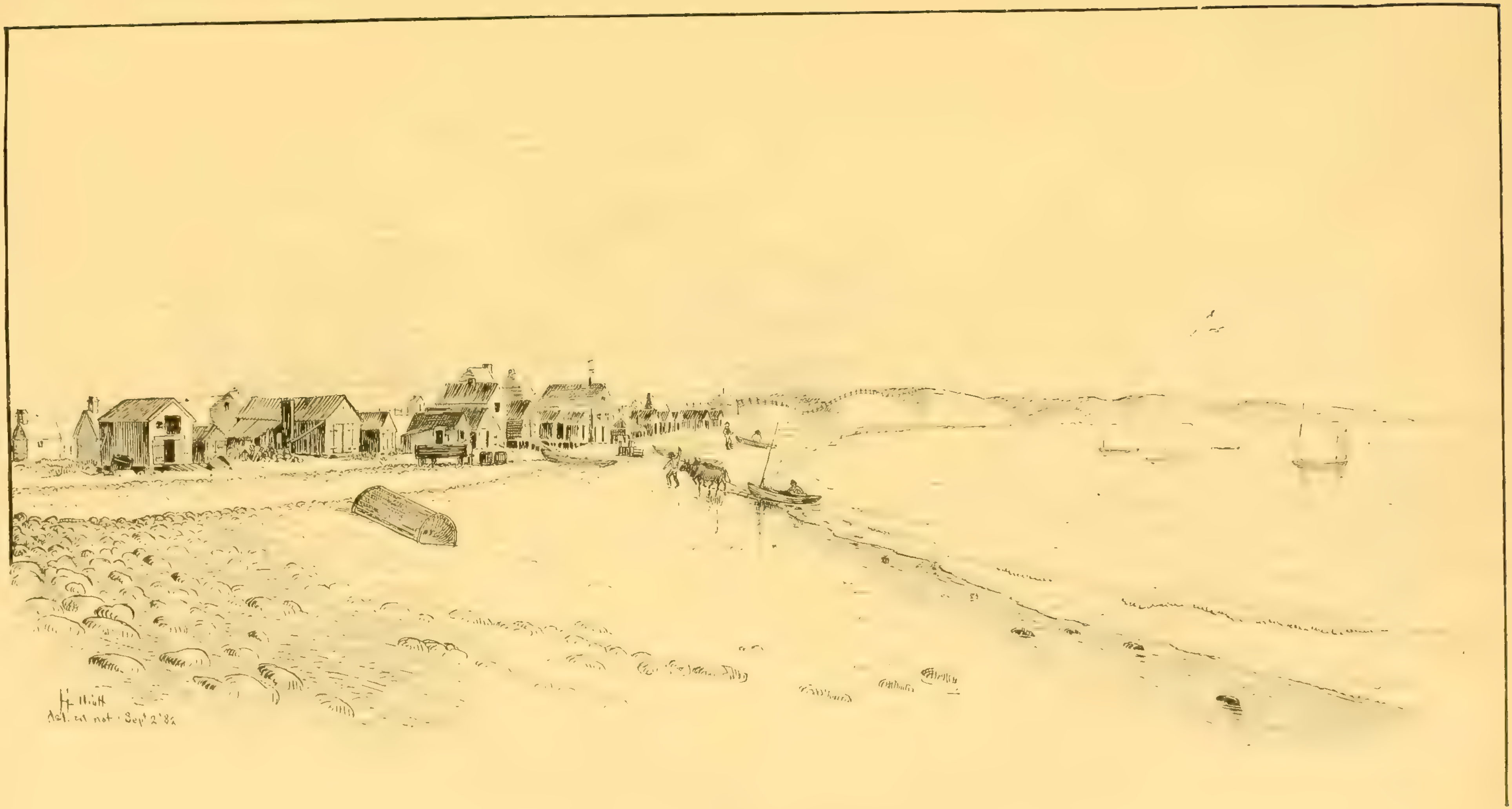


Photo Eng. Co. N.Y.

THE LOBSTER FISHERY.

Lobster cove at Lanesville, Cape Ann, Mass., showing boat-houses and lobster-gear. (Sect. v, vol. ii, pp. 666, 773.

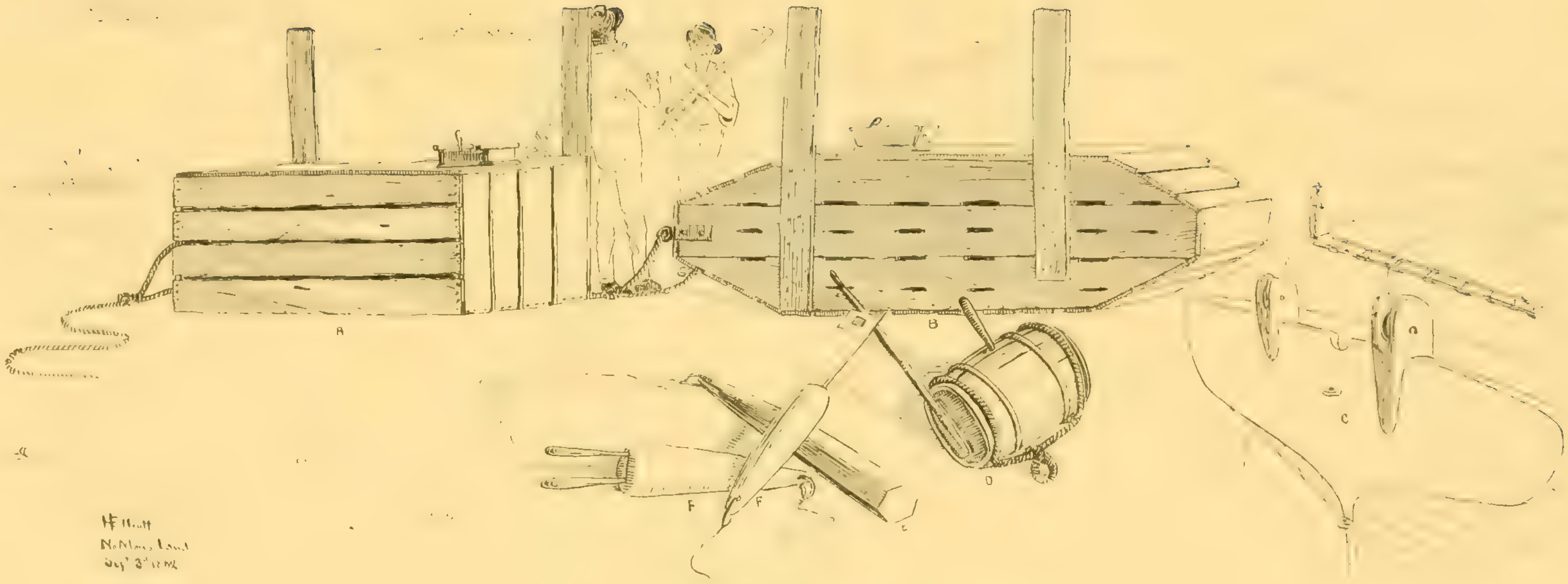
From a photograph by T. W. Smillie.



THE LOBSTER FISHERY.

Summer village of lobster fishermen at No Man's Land, Mass. (Sect. v, vol. II, p. 781.)

Drawing by H. W. Elliott

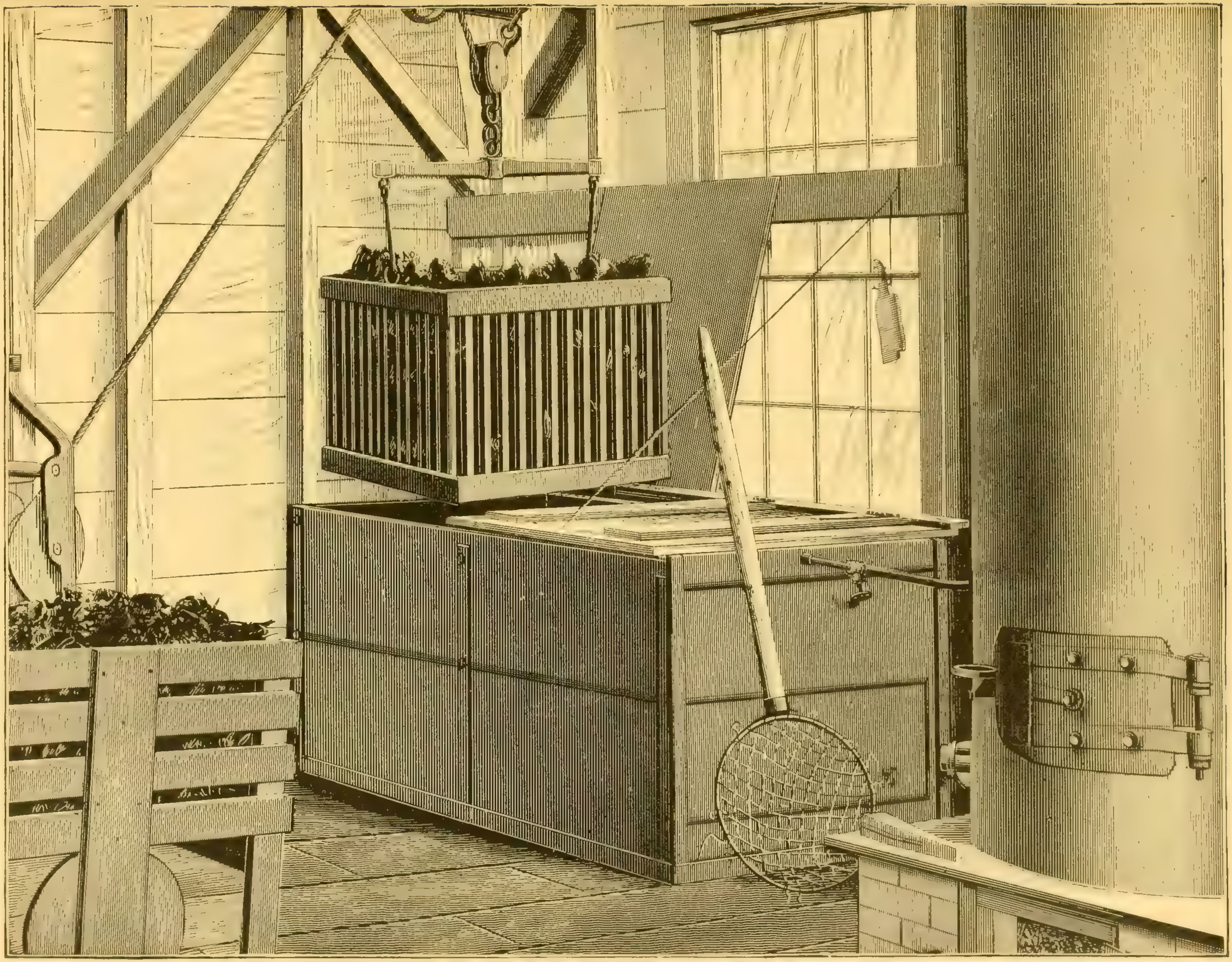


THE LOBSTER FISHERY.

Lobster fishermen's gear at No Man's Land, Mass. (Sect. v, vol. ii, pp. 665, 672, 781.)

A. Lobster car, common form.
B. Lobster car for rough weather.
C. Loggerheads, or line-rollers, for hoisting traps.
D. Buoy for end line.
E. Buoy for underrunning.
F. Gay Head buoys.

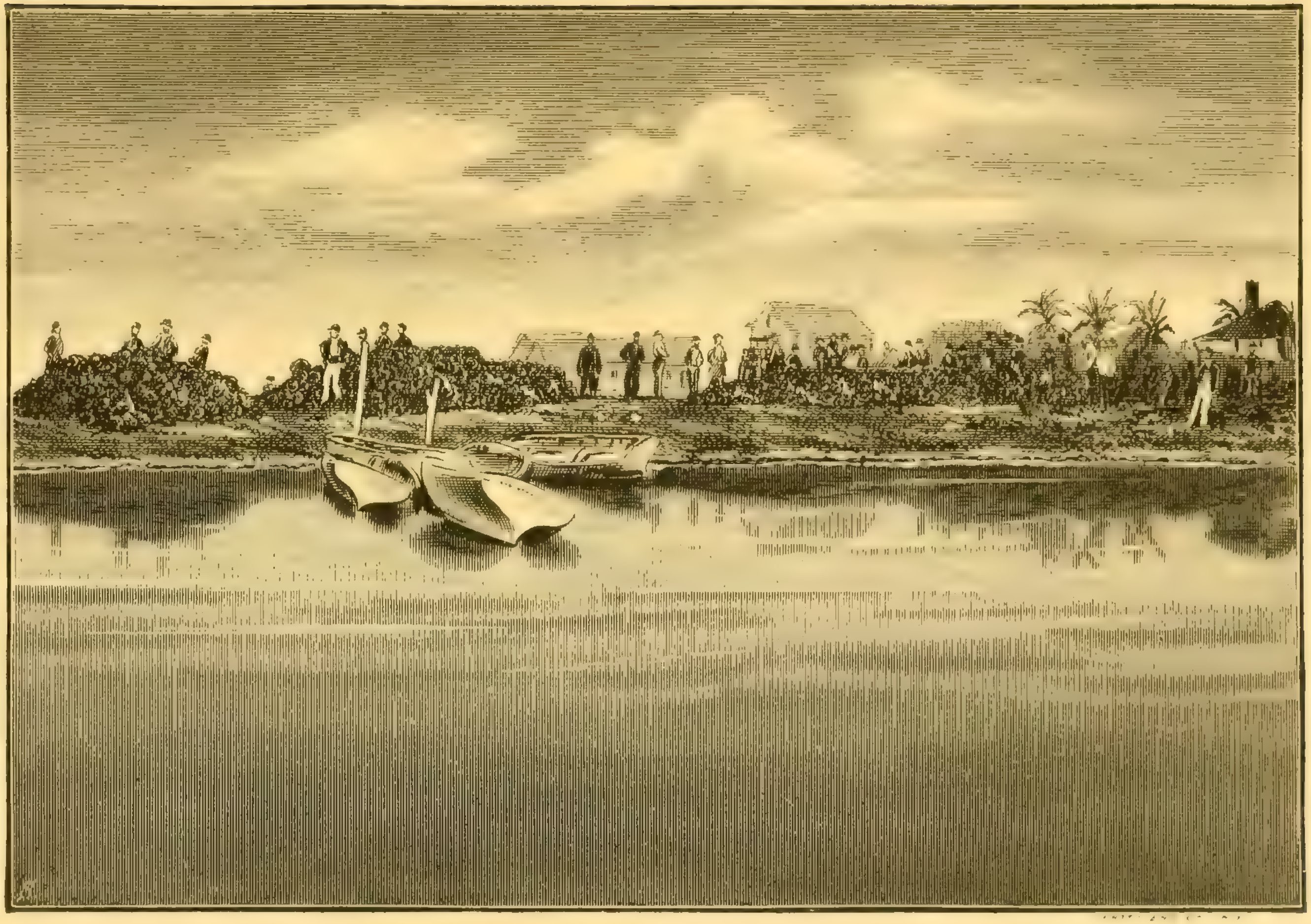
Drawing by H. W. Elliott.



THE LOBSTER INDUSTRY.

Lobster-boiling apparatus at Portland, Me. (Sect. v. vol. ii, p. 684.)

From a photograph by T. W. Smillie.



THE SPONGE INDUSTRY.

Sponges as landed by the fishermen at Key West, Fla., and ready for sale. (Sect. v, vol. ii, p. 826.)

From a photograph

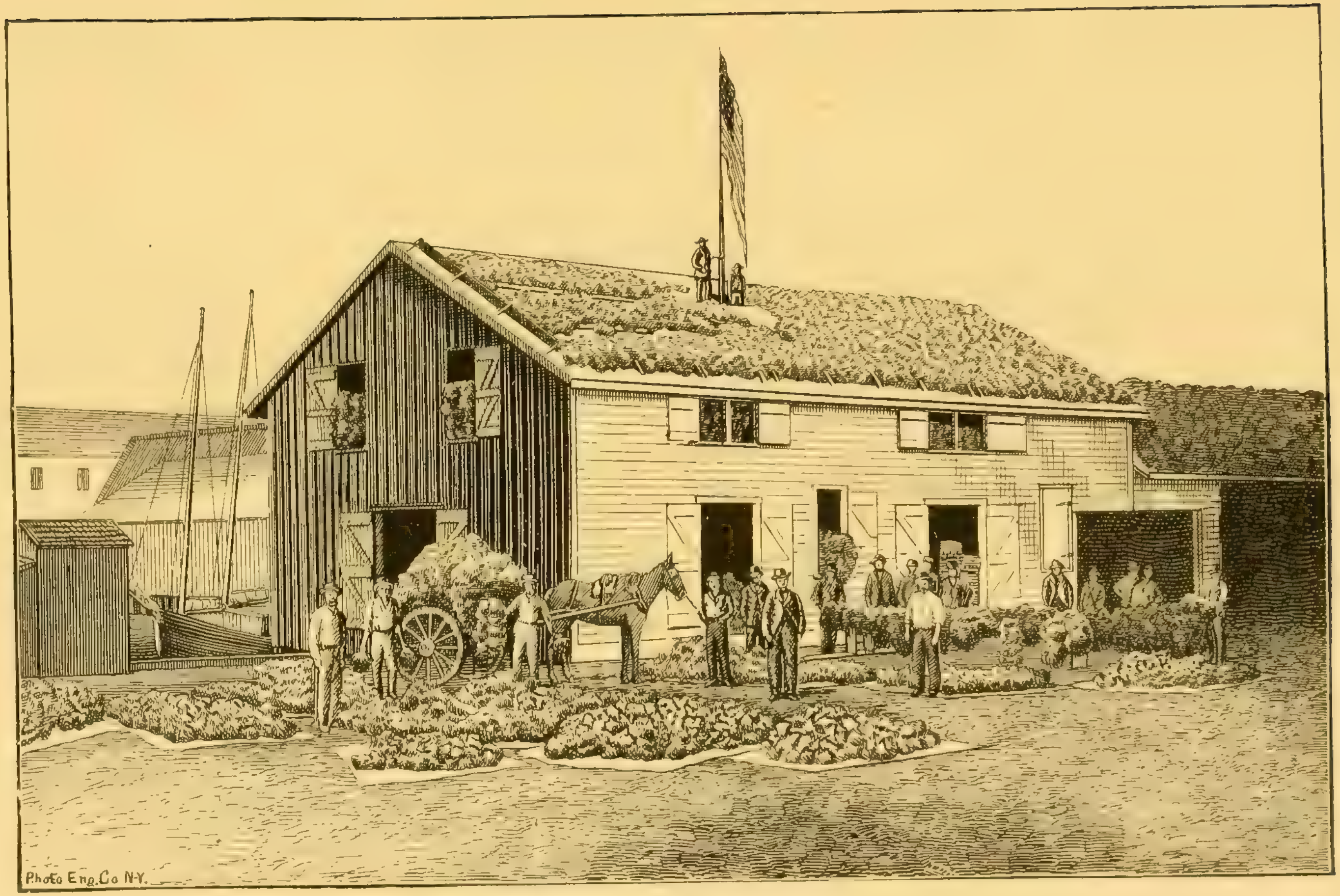
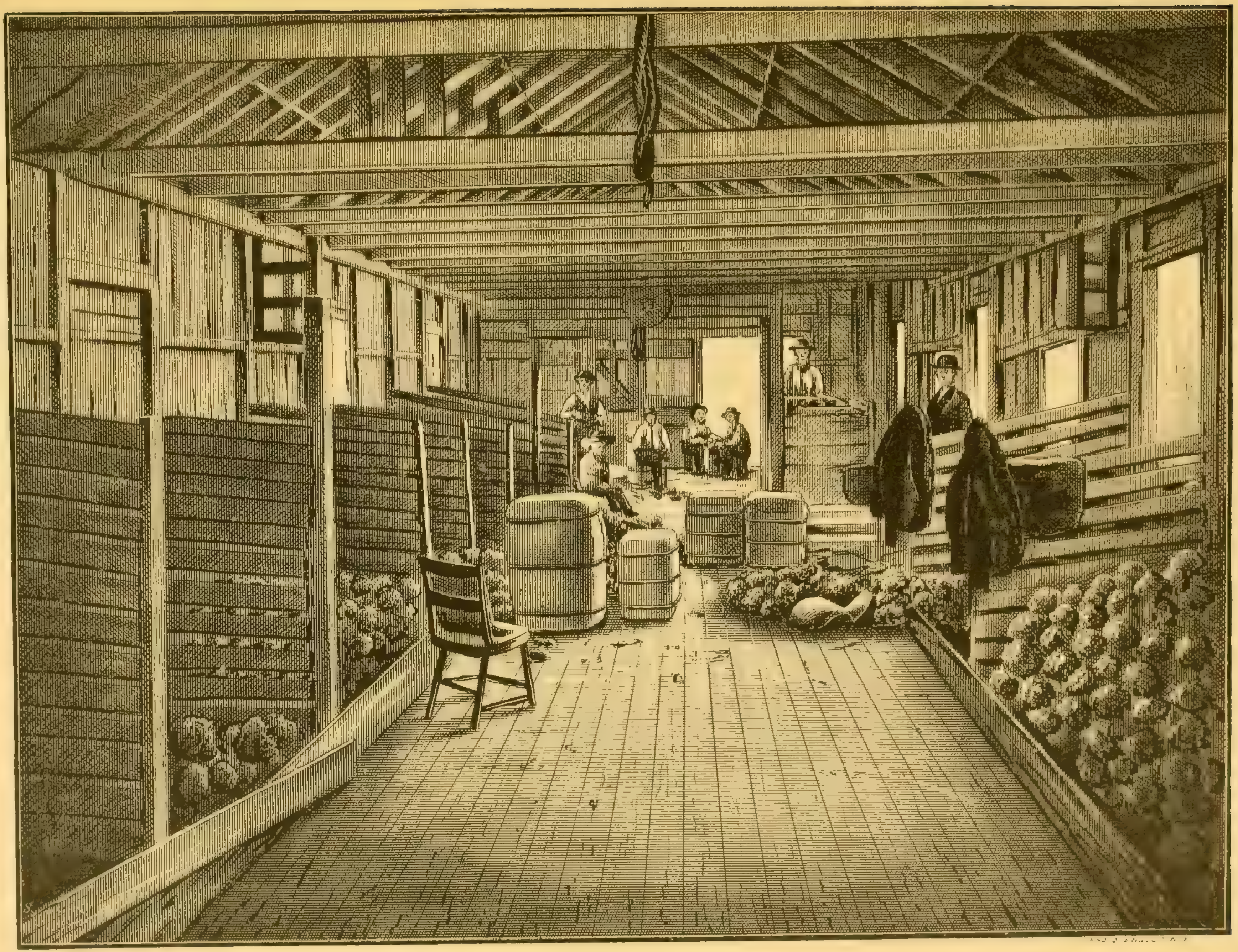


Photo Eng. Co N-Y.

THE SPONGE INDUSTRY.

Sponge-loft at Key West, Fla. (Sect. v, vol. ii, p. 828.)

From a photograph.



THE SPONGE INDUSTRY.

Sorting, trimming, and baling sponges at Key West, Fla. (Sect. v, vol. ii, p. 828.)

From a photograph